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WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
5720 COLUMBIA PARK ROAD
CHEVERLY, MARYLAND

JULY 1992

Prepared for

Blake Construction Company

By

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1.0 INTRODUCTION
WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

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1.0 INTRODUCTION
WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

Remedial action consisting of the removal of PCB-contaminated materials from the Rogers Electric site (site) is being required by the United States Environmental Protection Agency (EPA). The work will be performed jointly by Blake Construction, Inc., and the United States Defense Logistics Agency (DLA). The objectives of the work are to conduct an appropriate removal action, to abate, mitigate, and/or eliminate the release or threat of release of hazardous substances at the site, and to properly transport and dispose of the hazardous substances located there. Pursuant to the draft Administrative Order of Consent (Consent Order), Docket Number III-91-xx-DC, this work plan (WP) has been developed to guide on-site operations. As prepared by R. E. Wright Associates, Inc. (REWAI), this WP is comprised of four sections.

A Health and Safety Plan (HASP) is designed to protect the health and safety of DLA-REWAI workers and subcontractors, other personnel, and the public from the hazardous substances and work-related health and safety hazards during performance of the work, and includes provisions for site control, site security, and fire protection. REWAI subcontractors have the option of providing HASPs for their workers. These must be at least as stringent as the overall HASP herein, and are subject to approval by REWAI's Health and Safety Officer. In addition, the subcontractor selected to perform the remedial work will submit a spill contingency plan to address unexpected spills or releases during the course of work.

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The next part contains five sections describing methods of site characterization, remedial action alternatives, and storage and disposal procedures.

The following part outlines laboratory quality assurance, quality control (QA/QC) and chain-of-custody procedures which comply with EPA guidance document QAMS-005/80.

The last section is an elaboration of a schedule for implementation of the work plan, in accordance with the Consent Order deadlines and the time anticipated for on-site operations.

The remedial action will proceed in five steps, as follows:

1. Surface and miscellaneous material sampling and analysis will be performed to determine the presence and concentration of PCB contamination in drums, transformers, and other equipment currently on the site.
2. Surface remedial action and disposal will remove and properly transport and dispose of PCB-contaminated equipment and materials. Included in these activities are the removal of drums, transformers, and welder cores by DLA.
3. Subsurface investigation, sampling, and analysis will determine the aerial extent, depth, and concentration of PCB contamination on asphalt and in soils beneath the site.
4. Subsurface remedial action could include one or more treatment or disposal scenarios, depending on the

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results of the subsurface investigation. In areas where contaminant concentrations and related site conditions meet the necessary criteria to affect in-situ treatment technologies, those options may be evaluated and pursued. Such treatment technologies may include, but not be limited to, lime treatment, vitrification, or extraction methods. In other areas of the site where the contaminant concentrations or other criteria are not within the acceptable ranges to allow in-situ treatment, removal and off-site disposal will be performed.

5. Confirmatory sampling and analysis will follow the remedial actions and be conducted in accordance with EPA Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup (EPA-560/5-86-017; May, 1986) to verify that the site has been remediated.

The overall schedule for these activities, as shown in this work plan, is predicated upon EPA review and response time.

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2.0 HEALTH AND SAFETY PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

HEALTH AND SAFETY PLAN
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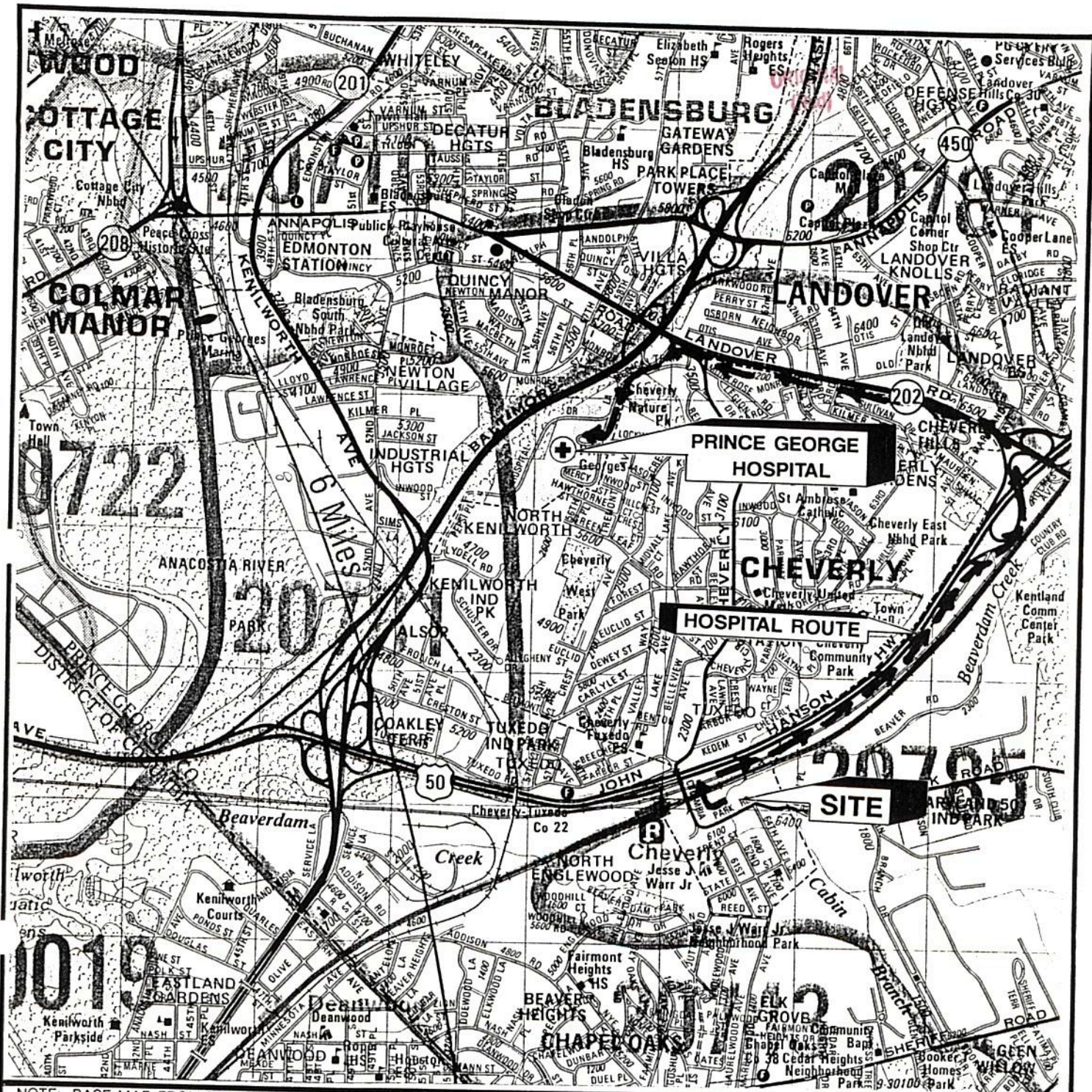
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2.0 HEALTH AND SAFETY PLAN FOR
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

This Health and Safety Plan (HASP) has been prepared for Blake Construction Company (Blake) by R. E. Wright Associates, Inc. (REWAI) to address personnel health and safety requirements for soil, pavement, drum, transformer, and other materials sampling at Rodgers Electric Site, Cheverly, Maryland (Figure 2-1).

To assure proper personnel protection during the course of the investigation, this HASP provides a mechanism to permit modifications, based upon existing, measured, and observed conditions. This HASP is designed to identify health and safety considerations when dealing with polychlorinated biphenyl (PCB) contamination. PCB is an eye, skin and mucous membrane irritant. PCBs are treated as materials with poor warning properties, as no quantitative data are available concerning its odor and irritation thresholds. There is no "real-time" monitoring equipment which can assess the PCB concentrations emanating from the various testing and remedial activities at the Rodgers Electric site. This poses a problem when protective levels need to be defined on an immediate basis. Therefore, conservative respiratory action levels will be used, until air monitoring results are available. A detailed description of PCB, its properties, and hazards is contained in Appendix A.

Prior to initiation of any on-site work for Blake a listing of all employees who may be on-site, and their training, should be provided to enable REWAI to evaluate the qualifications of personnel planned for use during the investigation. Proposed subcontractor personnel qualifications should also be submitted to allow prequalification prior to site activities.



NOTE: BASE MAP FROM THE WASHINGTON DC AND VICINITY, ADC OF ALEXANDRIA VA, 1989.



FIGURE 2-1

**BLAKE CONSTRUCTION
RODGERS ELECTRIC SITE**

**SITE LOCATION MAP AND
HOSPITAL ROUTE**

drawn SS	approved <i>[Signature]</i>	drawing no.
checked <i>[Signature]</i>	date 5-9-91	91130-002-AA

r. e. wright associates, inc.
earth resources consultants
middletown, pa. king of prussia, pa. westminster, md. dallas, tx.

Personnel Responsibilities

Compliance with this HASP is required of all workers and third parties who enter the remediation area. To preclude unnecessary exposure to contaminants, all investigations should be conducted with only the required number of personnel needed at a given time, to satisfactorily complete the assigned tasks. Also, to achieve the highest level of worker safety, all on-site work should be performed under the guidance of the Project Health and Safety Officer (PHSO).

Project Health and Safety Officer

The PHSO would be appointed by REWAI's Project Director, and approved by a REWAI corporate officer. In addition to determining the levels of personnel protection necessary for each activity performed on-site, the PHSO would have the necessary expertise to execute the HASP.

The PHSO would have the following responsibilities:

- o Establish levels of personnel protection required for each work activity on a daily or immediate basis, in fulfillment of the requirements of the approved HASP. Levels of protection would be established on the basis of task and continuous air monitoring results in accordance with the specific provisions of the HASP. In the case of conflicting data, the highest indicated safety factor would be implemented, as a health precaution.

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- o Daily review planned activities with respect to potential hazards, including trip, slip, fall, fire, electrical and thermal hazards, in addition to exposure hazards to assure that all work is conducted in accordance with established safety guidelines.
- o Implement established safety guidelines.
- o Assure that air monitoring and safety equipment is calibrated and in proper working order.
- o Assure that personnel are properly trained in safety equipment use and limitations.
- o Monitor decontamination procedures so that they are carried out effectively.
- o Record analytical data, weather conditions, worker exposure, protective equipment in use, and any unusual event that may occur during on-site activities.
- o Document HASP revisions including the specifics and rationalizations for the change, made with the approval of the PHSO.

The PHSO must, as a minimum, have the following qualifications:

- o At least 40 hours of health and safety training in compliance with OSHA 29 Code of Federal Regulations (CFR) 1910.120 requirements including training in the use, capabilities, and limitations of dermal and respiratory personal protective equipment (PPE).

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- o Eight hours of additional training for managers and supervisors.
- o Three days of actual field experience under the direct supervision of a trained and experienced supervisor.
- o A knowledge of potential site hazards.
- o A working knowledge of the capabilities and limitations of air monitoring equipment.
- o A familiarity with methods used in performance of each work activity at the site and support areas.

It is within the authority of the PHSO to refuse access of any unauthorized or untrained personnel to the site, eject personnel from the site for noncompliance with the HASP, or cease operations due to exposure levels anticipated or encountered that are beyond the scope of personnel preparedness.

General Guidelines and Procedures

Medical Surveillance

All personnel working within the study area(s) are required to adhere to a medical surveillance program which, as a minimum, satisfies OSHA Regulations 29 CFR 1910.120. Its purpose is summarized below:

- o Establish a baseline for the pre-site health status of each employee;

- o Determine if any medical abnormalities exist which might seriously interfere with an employee's job performance; and
- o Determine the capacity of the individual to perform work while using PPE.

Each individual must undergo the following medical tests prior to his access to the site:

- o A medical history which includes past work exposure to hazardous chemicals or any other history of blood, nerve or inherited medical problems. This should include documenting any history of renal or liver disfunction, prescription and non-prescription drugs routinely taken, alcohol intake, and systemic infections. Exposure to materials such as cleaning agents, insecticides, and other toxins outside of the current work situation should also be documented.
- o Laboratory tests must be completed including:
 - . A complete blood count (Method SMK-23) with red cell count, and white cell count, with differential platelet count, hematocrit, hemoglobin, red cell indices (MCV, MCH, MCHC, serum bilirubin, and reticulocyte count), and any additional tests where, in the opinion of the attending physician, abnormalities in the components of the blood are detected,

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- . Urinalysis,
- . Chest X-ray, frequency at the discretion of the attending physician,
- . Electrocardiogram, and
- . Pulmonary function test, including tests of lung ventilation to measure forced expiratory volume in one second and forced vital capacity, and other factors such as Full Expiratory Force (FEF), Respiratory Volume (RV), and Total Lung Capacity (TLC) at the discretion of the attending physician.

A physical examination must be required during the course of the investigation in situations of possible exposure on the site due to spill, sudden release of chemicals, or failure of PPE; complaints from the on-site employees which indicate a potential problem; or as a required part of a routine medical surveillance program such as 29 CFR 1910.120. Such an employee examination may be mandatory upon their completion of work under the contract. In every case, the examining physician should certify, in writing, the worker's fitness for work on the site and provide a copy of the certification to the worker, their employer, and REWAI.

At the present time, REWAI medical records and maintenance of pre-project physicals are being conducted by:

(b) (6)



and

(b) (6)



Documentation

Records of all factors affecting worker safety and health will be maintained by REWAI. This would include analytical data, weather conditions, worker exposure, PPE use, and any unusual event that may occur on-site. In addition, employee health monitoring data, health and safety planning documentation and contingency plan communications and contacts will be maintained by REWAI until completion of the contract, and then transferred to Blake, if so desired.

REWAI's On-Site Coordinator (OSC) and PHSO would be responsible for recording field data. The REWAI Project Manager would be responsible for maintaining up-to-date files of medical and safety-related items.

REWAI will retain the medical records of on-site workers only relating to findings and information which directly affect job performance. These records must be maintained in a confidential manner such that only authorized persons such as corporate officers of the employer or REWAI medical staff or contracted medical personnel, the individual, the individual's personal physician, or the individual's representative may have access to the reports. Upon written request, the individual may obtain a copy of the medical file from the employer or physician. Upon

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death, retirement, resignation, or other termination of service, the records must be retained by the employer or contracting physician for a period of 30 years.

Safety Training

All full-time workers must be required to complete a minimum safety training program for hazardous waste site work consistent with 29 CFR 1910.120, including but not limited to:

- o Respiratory protection (instruction and prework briefing in respiratory protection and respirator fit testing).
- o Physical and chemical properties of suspected and known hazardous materials (general instruction and prework site-specific briefings).
- o Site operating procedures (instruction and site-specific prework briefing) in levels of personal protection, work zones, perimeter control, decontamination, evacuation and self-rescue, and emergency procedures and signals.

All others who enter the site on a less-than-full-time basis require site-specific instruction to meet the requirements of 29 CFR 1910.120 including:

- o The use of respiratory equipment (for individuals without previous training).
- o Emergency procedures.
- o Review of suspected hazards.

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- o Site work zone definition and work plan.
- o Decontamination procedures.

Specific instruction would be provided by the PHSO or qualified personnel. These individuals would be required to read the General Work Rules as outlined in a later section of this document and complete all necessary forms.

Construction Activities

All on-site construction activities will be in accordance with Occupational Safety and Health Administration (OSHA) Standards (29 CFR 1926), in particular, but not limited to:

- o Subpart E, Personal Protective and Life Saving Equipment
- o Subpart F, Fire Protection and Prevention
- o Subpart I, Tools - Hand and Power
- o Subpart K, Electrical
- o Subpart L, Ladders and Scaffolding
- o Subpart P, Excavation, Trenching, and Shoring
- o Subpart Q, Concrete, Concrete Forms, and Shoring

Site Control Plan

To reduce the potential for contamination transfer from a site due to site operations, the following control procedures should, as a minimum, be implemented. The site will be divided into designated support areas and work zones where the investigations are to be conducted. With this approach, the efforts to contain

the hazardous substances would be concentrated in the areas where protection is most necessary during field activities.

Work Zones

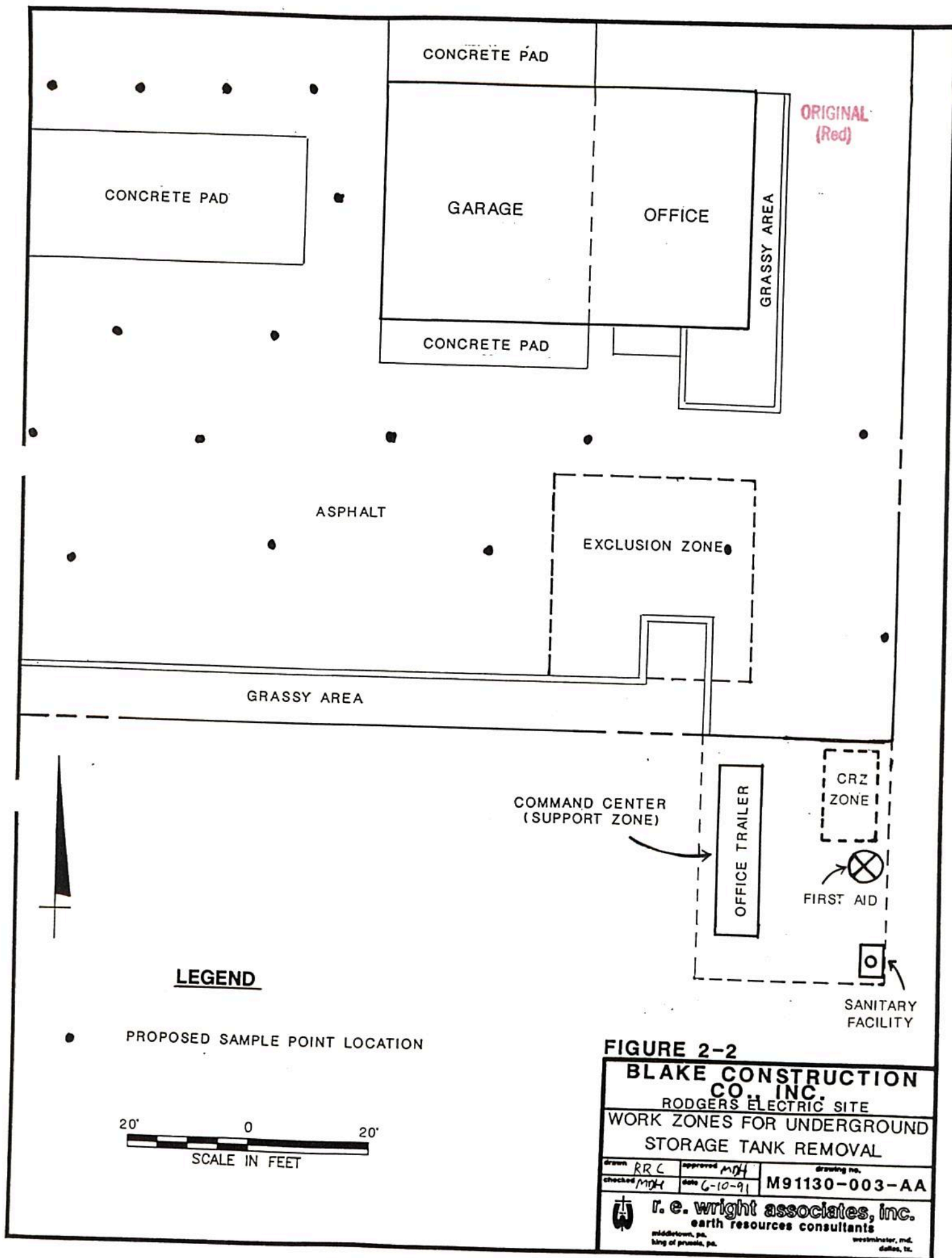
Based on background reports, PCB contamination is potentially spread throughout the site. Thus the entire area of excavation and drilling sites may be referred to as an "exclusion zone." Entry and exit is regulated by a fence around the entire property.

For a PCB sampling investigation, the work zone will be defined as a minimum of 30 feet radius away from invasive activities, and areas where air emissions above background are measured. All personnel entering a work zone must wear the prescribed PPE for that area. At the work zone entry and exit point, and between the work zone and command post, a contamination reduction corridor shall be required to regulate entry and implement decontamination procedures for personnel and equipment.

Project Command Post

A command post has been designated as the outfitted office trailer set up outside the gate entrance (Figure 2-2). Because the trailer may be down wind, measures to prevent dust emissions will be strictly enforced. Personnel commuting between the front gate and the exclusion zone must have protective equipment. Vehicles should be parked off site.

The project command post, contamination reduction zone and support zone, will initially be set up outside the site, as depicted in Figure 2-2, during initial sampling of the front part



of the site and the removal of the underground storage tanks. Once the tanks are removed and the front of the site is determined to be free of contamination, all or part of the contamination reduction zone and support zone will be moved inside the fenced area.

The command post will be the center of communications for on-site operations. Where a work area is within general access of a telephone, the command post shall be outfitted for telephone service for field-to-office communications and for emergency calls. Emergency phone numbers must be posted in a conspicuous location near the phone.

Most of the work on-site will be performed within a limited distance of the command post; therefore, site communications will utilize telephones that are available.

Support Zone

This area will provide space for worker wash-up, work clothes storage, and dress-out area. Miscellaneous safety equipment will be stored in the support area for logistical needs and emergency preparedness.

Work Zone Security

Work sites should only be opened to the predetermined number of authorized and trained personnel to limit unnecessary potential exposure of personnel to contaminants. Personnel authorized to access the site will include Mr. Chester White or his designee (Blake Construction), Mr. Tim Gardner, Mr. Jack Murosko, or Mr. Mike Haufler (REWAI), Mr. Jeff Kuzemchak and assigned work

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personnel from Clean Harbors (subcontract cleanup and disposal contractor), Mr. Stan Cohen and assigned work personnel from J. E. Fritts, Inc. (subcontract drillers), and assigned Maryland Department of the Environment and U. S. Environmental Protection Agency personnel. All outside gates should be securely locked at night.

It will be the responsibility of the PHSO or designated health and safety officer (DHSO), with the assistance of the designated Blake personnel, to keep unauthorized personnel away from the exclusion area during work activities. During periods of inactivity, the equipment should be secured to minimize the opportunity for physical hazard accidents. Subsurface intrusions should be covered overnight to reduce any hazard that may be posed.

Operating Procedures

Air Monitoring

The PHSO will continuously monitor for volatile organic compounds (VOCs) to assess conditions in the working environment in order to provide adequate levels of personal protection. The use of selected air monitoring equipment throughout the remediation will provide information to continuously evaluate levels of protection. Soil samples and bulk samples of other areas of contamination will refine the nature of air sampling required as outlined below.

Adequate assessment of VOCs will be determined in the field. Total VOCs in ambient air in the working environment will be

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assessed during all site activities using organic vapor analyzers (OVA) with flame ionization detector [FID] (Secp. 2-14).

PCB air monitoring will be performed using National Institute for Occupational Safety and Health (NIOSH) Method 5503. This method uses low flow (maximum of 0.2 liters per minute) personal air sample pumps. The sampling configuration is two-staged. Particulate dust is collected on 13 or 25 millimeter (mm) fiberglass filters. PCB's that penetrate the filter are collected on a 6 mm outside diameter Florasil tube. This method has a detection limit ranging between 0.4 to 4 micrograms per cubic meter (ug/m^3). The OSHA Permissible Exposure Limit (PEL) is $500 \text{ ug}/\text{m}^3$. The NIOSH Threshold Limit Value (TLV) is $1 \text{ ug}/\text{m}^3$ for PCB with 54 percent chlorine. Each personal air sampling pump must be calibrated for air flow at least once in the beginning and once at the end of the day.

In summary, environmental air monitoring equipment available for use at Rodgers Electric includes the following equipment:

- o Foxboro Century II organic vapor analyzer or flame ionization detector (OVA or FID).
- o MSA Samplair, Sensidyne, or Supelco personal air sample pump and Florasil detector tubes.
- o Neotronics Exotox combustible gas and oxygen indicator (CGI).

Air Monitoring Locations and Frequency - It is the responsibility of the PHSO to assure that air and soil monitoring is carried out to establish safety guidelines and PPE requirements. The

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monitoring can be performed by a qualified person designated by the PHSO and under the direction of a qualified industrial hygienist for specific on-site activities. Air monitoring should take place as follows:

- o During excavation activities, representative personnel and ambient air sampling will be performed. Initially, a minimum of two, four-hour samples should be obtained from each pump, daily. Refer to NIOSH Method 5503 (Appendix B) for pump flow rates and the optimum range in air volumes sampled.
- o Prior to beginning work each day, the site-support area and contamination reduction corridor must be monitored.
- o When conditions change, within the exclusion zone, appropriate air monitoring utilizing the OVA must be performed to assess the degree of contamination in ambient conditions. The readings would be used to establish levels of personnel protection for individuals working in that area. The designation level of personnel protection levels is based on the provisions established by the United States Environmental Protection Agency (EPA) (Appendix C).
- o The PHSO must supervise the continuous monitoring of invasive activities and advise personnel of the hazard and the level of protection required for each respective task.

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- o When air monitoring indicates levels of contaminants are measured at or above 50 percent of OSHA PELs, work would have to immediately cease until such time as appropriate action is established to reduce exposure. This may require the upgrade of PPE or reevaluation of the need to proceed.
- o The PHSO must supervise the fitting of PPE and shall determine the option to proceed.

Personnel Protection

Personnel health and safety protection shall follow the guidelines provided by this HASP. Modifications to the HASP may be made by the PHSO with the approval of the REWAI Project Manager and Project Director. Such modifications can occur on a day-to-day basis as conditions change, based on ongoing monitoring. Any necessary revisions must be fully documented by the PHSO to include the specifics and rationalizations for the change.

PPE associated with designated levels of protection will be available and used by all personnel in areas designated by the PHSO as requiring that level of protection, unless other specific equipment is provided for a certain activity by the plan.

PPE will be stored in a clean, dry environment prior to its usage. Disposable equipment shall remain, in its original manufacturer's packaging to ensure its integrity. The equipment will be inspected by the PHSO or his designee prior to its usage.

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PPE that is assigned to a specific end user is subject to inspection by the PHSO at any time.

Determination of Level of Protection Requirements - Hazardous materials suspected at the Rodgers Electric site are PCB oils in drums, transformers, soils and on pavement. Sampling and handling activities can potentially expose workers to dermal contact with PCB. In order to protect personnel from PCBs, full-face airpurifying respirators fitted with GMC-H filters will be required when dust or splash protection is needed.

Appropriate levels of personnel protection must be established on the basis of work task and ambient air-monitoring responses. This criterion would be applicable to all activities unless specific protection requirements for a certain task are addressed as a modification to this HASP. Levels of personnel protection should be as follows:

- o Level D - Organic vapor concentration at background: regular worker uniform including steel-toed safety shoes, hard hat, safety glasses, and Tyvek coveralls. Level D will be considered the minimum protection level for work conducted within any exclusion zone on-site.
- o Level C - Total organic vapor concentration from 5 parts per million (ppm) to 25 ppm above background or particulate PCB concentrations greater than 0.25 milligrams per cubic meter (mg/m³) requires a full-face, air-purifying cartridge respirator equipped with GMC-H type filter cartridges. In addition to respiratory protection, inner and outer chemical resistant gloves will be worn. Disposable Tyvek

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coveralls and chemical-resistant boots will also be employed for dermal protection. If the activity involves the potential for splash of contaminants, dermal protection will be upgraded to Saranex-coated Tyvek with hood or chemical-resistant rainsuit over Tyvek. All Level C work will be performed with two-member teams as a minimum.

- o Level B - Organic vapor concentrations greater than the Immediately Dangerous to Life and Health (IDLH) level listed in the NIOSH, constitute a Level B condition. An oxygen-deficient atmosphere would be the primary cause of this PPE level. However, the presence of volatile organic vapors at a level adequate to cause an oxygen deficiency would pose a significant explosion potential. Explosions are not addressed within the EPA levels of protection, but are addressed later in this HASP.

Dermal Protection - In general, dermal protection levels would correspond with the respiratory protection level in use during an activity as described in other sections. For most noninvasive activities on the site, disposable Tyvek coveralls will provide protection against nuisance dust. When work tasks are such that invasive activities are performed, disposable Tyvek coveralls will provide protection against dust. If these work tasks are such that splashing of contaminated water is possible or imminent, dermal protection would be upgraded to coated Tyvek (Saranex) or chemical-resistant rainsuit over Tyvek. This determination will be made by the PHSO as required.

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Chemical- and abrasion-resistant outer gloves and inner chemical-resistant disposable gloves would be required in the work zone to provide adequate protection of hands and assist in preventing transfer of contaminants. As much of the investigation may require handling of possibly contaminated equipment, groundwater, or soil, chemical-resistant gloves shall be required for all on-site work with these materials. Various operations which require dexterity and do not necessitate the abrasion-resistant feature of outer gloves could be performed with the inner gloves only, at the direction of the PHSO.

The following commonly used materials are considered excellent to good chemical protective clothing for PCB:

- o Saranex

The following commonly used materials are considered good to fair chemical protective clothing for PCB:

- o Polyvinyl alcohol
- o Viton
- o Teflon

Eye Protection - PCBs are an eye irritant. PCBs in dust and air-borne particulates will not be detected by the monitoring program. Therefore, eye protection requirements should correspond to respiratory protection levels, and full-face respirators would be required in all work areas designated as Level C or higher.

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Specific air monitoring must be performed and the results will be used by the PHSO along with task-specific requirements to establish levels of personnel protection for all site activities. The following sections provide preestablished protection requirements for some task-specific items or portions of tasks that may be performed on-site.

Task Specific Personnel Protection Guidelines

Drilling - All drilling conducted on the site inside the exclusion zone will be initiated under Level C respiratory protection dermal protection. This may be modified to higher levels prior to drilling by the PHSO, due to site-specific requirements. Minimum protective equipment during drilling must be:

- o Saranex coverall.
- o Chemical-resistant gloves.
- o Outer chemical-resistant boots.
- o Steel shank and toe safety shoes.
- o Hard hats.
- o Full-face, air-purifying cartridge respirator.

Soil Sampling - Respiratory protection requirements for each of these activities would be established by air monitoring of the sampling area prior to and during sampling. Since soil sampling will occasionally be associated with drilling, the requirements

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established for that task above would be used. If soil sampling occurs independent of a drill rig, continuous air monitoring must be conducted to establish the necessary respiratory protection requirements. Minimum protective clothing for all personnel involved in soil sampling within the exclusion zone must include:

- o Tyvek coverall.
- o Chemical-resistant gloves (optional).
- o Outer chemical-resistant boots (optional).
- o Steel-shank and toe safety shoes.

Drum and Transformer Sampling- Respiratory protection will be in Level C. Dermal protection will be in Level C to protect against splash. Minimum protective equipment during sampling must be:

- o Saranex coverall.
- o Chemical-resistant gloves.
- o Outer chemical-resistant boots.
- o Steel shank and toe safety shoes.
- o Hard hats.
- o Goggles and face shield.

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- o Full-face, air-purifying cartridge respirator within easy reach.

Soil Excavating - Initial respiratory protection will be Level C. Continuous air monitoring must be conducted to evaluate the air quality outside the command post, and at the downwind side of the property border. Site dust control may be required, to protect personnel in the command post and persons downwind of the site. Minimum protective clothing for all personnel involved in soil sampling within the exclusion zone must include:

- o Tyvek coverall.
- o Chemical-resistant gloves.
- o Outer chemical-resistant boots.
- o Steel-shank and toe safety shoes.
- o Hard hats.
- o Safety glasses or goggles.
- o Full-face, air-purifying cartridge respirator.

Fire Prevention Plan

Due to the potential presence of flammable oils at the site, the following safety guidelines must be followed to prevent the possibility of explosion:

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- o Use of lighters, matches, or torches will be permitted within the exclusion zone or contamination reduction corridor only if screening of the area with a FID and CGI indicates the absence of organic vapors suggesting conditions for safe operation. Absolutely no smoking will be permitted in either the exclusion zone or contaminant reduction corridor.
- o All monitoring equipment will be intrinsically safe or explosion-proof if used in areas of possible explosive atmospheres.
- o Fire extinguishers must be within reach of the motorized equipment operator, at the contamination reduction corridor, and in the command post.

Decontamination Procedures

All decontamination operations should be performed inside the contamination reduction corridor and supervised by the PHSO. The decontamination corridor should be equipped with brushes, plastic bags, and drum storage. Disposable outer wear and contaminated disposable equipment will be collected, drummed, and transferred to the custody of the subcontractor or alternate assigned to the project by REWAI.

The PHSO would be required to visually inspect PPE and clothing for residual soil or oil contamination to determine if further decontamination procedures are required prior to passage into the support area. Any equipment which cannot be adequately cleaned

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must be double-bagged and marked as such until more thorough decontamination can be performed.

The following decontamination facilities as a minimum should be provided in the support area:

- o Hand washing facilities.
- o First aid kit.
- o Eye wash station.
- o Fire extinguisher.

Proper on-site decontamination procedures, the use of disposable outer clothing, and field wash of hands and face before leaving the decontamination corridor will effectively minimize the opportunity for skin contact with contaminants.

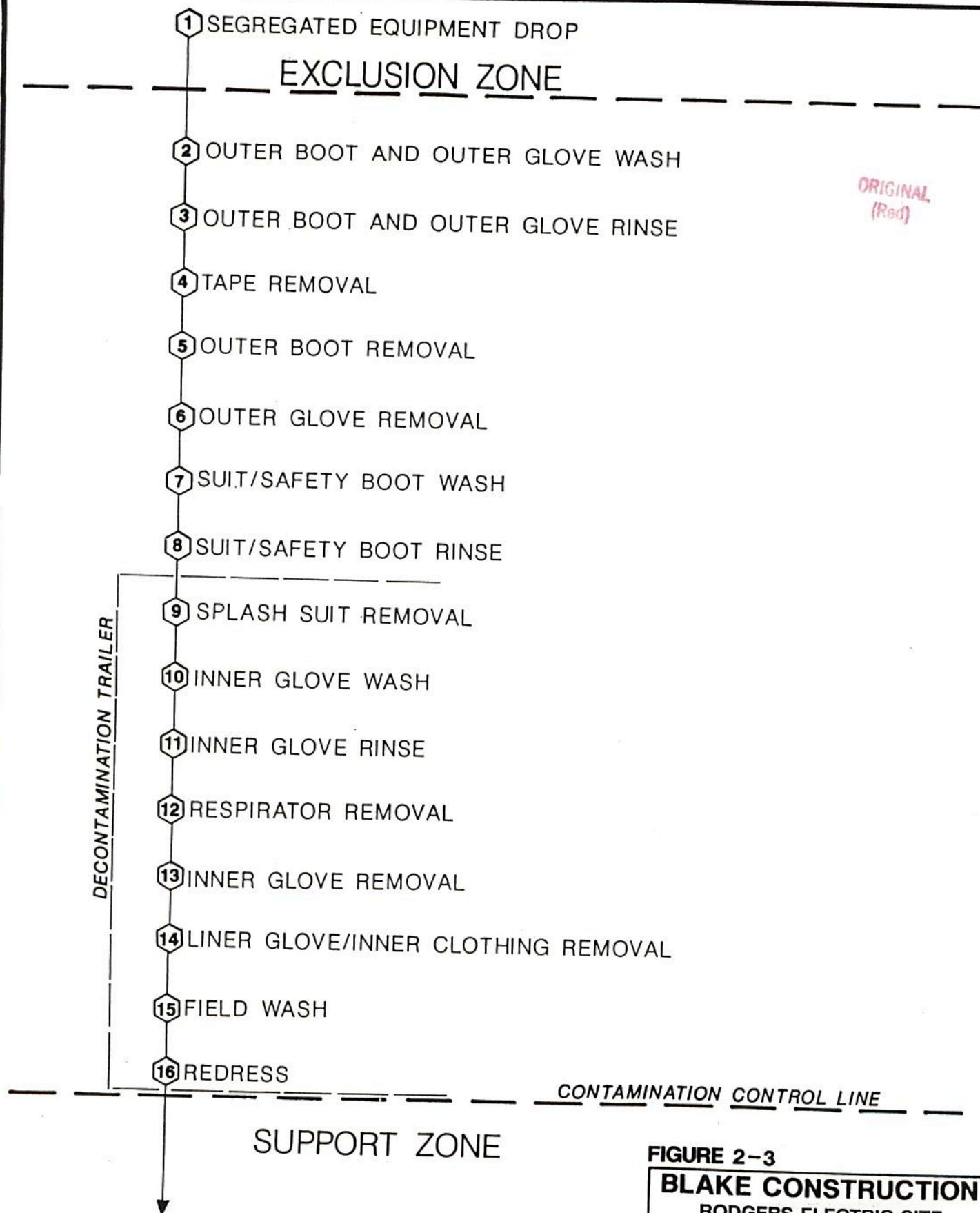
Personnel Decontamination Procedures

Decontamination procedures to be employed for various levels of personnel protection should be as follows:

Level D decontamination would consist of:


- o Potable water wash and potable water rinse of boots and outer gloves.
- o Bag or drum all disposable clothing.
- o Field wash of hands and face.

Level C decontamination would consist of the items in Figure 2-3.



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FIGURE 2-3

BLAKE CONSTRUCTION		
RODGERS ELECTRIC SITE		
SCHEMATIC FOR LEVEL C DECONTAMINATION		
drawn SS	approved <i>HVL</i>	drawing no.
checked CB	date 5-8-91	91130-001-AA
 r. e. wright associates, inc. earth resources consultants middletown pennsylvania		

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Level B decontamination is the same as Level C decontamination with the addition at Step 11 of the removal of the self-contained breathing apparatus (SCBA).

Respirators should be assigned to personnel working on the site for a full-time basis and decontamination of this equipment would be the responsibility of the assignee. Respirators must be washed in mild soap or other approved cleanser/sanitizing agent and warm water solution and rinsed following each day's use. Following field wash and rinse, respirators must be allowed to drip dry in the support area and be maintained in a clean storage area. All respirators are subject to inspection by the PHSO to verify cleanliness and maintenance conformance by the assignee.

Equipment Decontamination

All support vehicles associated with invasive activities or operating within the exclusion zone must be thoroughly cleaned prior to leaving the site. Other support equipment such as drilling and excavation equipment, tools, pumps, and generators should be cleaned with high-pressure hot water or steam as needed during the field effort and prior to equipment being taken from the site. Specific procedures for decontamination of field equipment would be established by a Field Sampling Plan in order to prevent cross contamination by the sampling equipment.

Personnel protection during equipment decontamination should be similar to that which is required in the work area in which the equipment was used. For example, a drilling rig which was used in a task which required Level C protection would be decontaminated under similar protection guidelines. Since there

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is a hazard of splash of decontamination fluids during high-pressure cleaning of vehicles, personnel should be required to perform decontamination wearing a minimum of chemical-resistant rainsuit outer clothing and face shield or full-face cartridge respirator.

Contingency Planning

Emergency contacts and phone numbers are provided in this section. In the event of an emergency, the PHSO and the OSC will respond by controlling the incident and informing the appropriate contact.

On-Site Evacuation Routes

If site evacuation should be required, all personnel should move upwind of the apparent problem area. Care should be taken to avoid impeding the forward motion of motorized vehicles on Park Road adjacent to the facility. This street will provide adequate evacuation routes to the east and west.

Emergency Procedures

In the event of an emergency situation such as fire, explosion, release of toxic gases, dust, etc., a vehicle horn will be sounded for approximately 30 seconds indicating the initiation of evacuation procedures. All personnel in Exclusion Zone, Work Zone, and Support Zone will evacuate and assemble near the front gate or other safe area as previously identified by the PHSO on-site. The PHSO in coordination with the REWAI Project Manager will have the authority to initiate proper action for efficient and safe site evacuation and assessment of emergency situations.

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The PHSO will see that the proper authorities are notified for possible evacuation of the surrounding residences. A list of emergency phone numbers and the hospital route are in Appendix D. This information should be prominently displayed in the command post.

Except for emergency personnel such as firemen, police officers, or medical rescue teams, under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The PHSO must see that notice of site hazards are given to local emergency authorities prior to start of work on-site. During an emergency, the PHSO will control access for emergency equipment and will assure that all work has been shut down and personnel evacuated once the alarm has been sounded.

For more detailed medical procedures, see Appendix A, pages 4 through 6.

- o Skin contact: In the event of personnel exposure to potentially toxic or hazardous contaminants by skin contact, the following procedures will be employed:
 - . Wash skin and rinse with copious amounts of soap and water for at least 15 minutes,
 - . Follow with application of castor oil or 10 percent ethyl alcohol
 - . Then transport, to the nearest hospital or poison control center. Dialing the emergency number 911,

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will inform a dispatcher and proper medical response will be initiated.

- o Inhalation: In the case of inadvertent inhalation of higher (potentially toxic) levels of contaminants:
 - . Victims should be moved to fresh air,
 - . Decontaminate (if necessary),
 - . Transport immediately to the local medical facility.
- o Ingestion: If ingestion of a potentially toxic or hazardous substance or unidentified substance had occurred, the victim must be decontaminated and transported to the local medical facility.
- o Injury: In the event of a personnel injury, emergency first aid would be applied on-site as deemed necessary. The PHSO must be trained in first aid and would be on-site during field operations. The victim should be decontaminated as soon as possible and transported to the local medical facility if needed.
- o Fire or explosion: In the event of a fire or explosion, the site must be evacuated immediately and the appropriate emergency response groups on the area will be notified as soon as possible.
- o Spill: The removal contractor is required to keep a spill contingency plan on site.

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- o Environmental incident: In the event of an environmental incident caused by a spill or other spread of contamination outside the exclusion zone, personnel should attempt to secure the spread of contamination if possible. The PHSO will be in charge of contacting Blake and the emergency response groups, and the PHSO will direct first aid procedures, and secure the site.

Emergency Contingency Plan Critique

In the event any of the contingency plans are implemented, each of the personnel involved shall complete an incident report as soon as practical. The incident report will be given to the project manager, who will forward copies to the project director, PHSO, and project file, where it will remain available for future reference.

General Work Rules

- o Eating, drinking, chewing gum or tobacco, smoking, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of hazardous materials must be prohibited on-site.
- o Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other similar activity.
- o Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

- o Excessive facial hair which interferes with satisfactory adjustment of the respirator is defined as a safety hazard and will not be allowed on personnel required to wear such protective equipment.
- o Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, avoid personnel and equipment contact with puddles, mud, and other discolored surfaces. Do not place equipment or sit on a known or suspect contaminated surface.
- o Medicines and alcohol can exaggerate the effects of exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on response operations where the potential for absorption, inhalation or ingestion of toxic substances exists unless specifically approved by a qualified physician.
- o Normal eye glasses are not compatible for use with full-face respiratory equipment, and contact lenses have the tendency to trap vapors between the eyes and the lense, allowing vapor absorption to the body via eye tissue. In addition, dislodged contacts can be a problem when on-site. Therefore, use of these devices is not allowed. Prescription lense inserts are available for most full-face respirators and should be used.
- o The buddy system will be maintained in all operations within the exclusion zone. Personnel should maintain

communications with their assigned partner and watch for signs of fatigue, exposure, etc.

- o No work will be conducted in the exclusion zone without appropriate supervision and air quality monitoring.
- o The Personnel Health and Safety Compliance Affidavit must be signed and dated by each person directed to work on the site on a full-time basis.

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AFFIDAVIT

Since all personnel working on-site are required to read and comply with the HASP, the following safety compliance affidavit shall be signed and dated by each person directed to work on the site on a full-time basis, and returned to the Project Manager.

I, _____ of _____
Name Company

have read the Health and Safety Plan for Rodgers Electric site. I agree to conduct all on-site work in conformity with the requirements of the HASP, and I acknowledge that failure to comply with the designated procedures in the Health and Safety Plan may lead to my removal from the site, and appropriate disciplinary actions by my employer.

Signature_____
Date

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3.0 ON-SITE ACTIVITIES PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

3.0 ON-SITE ACTIVITIES PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

The following plan addresses the remedial activities required at the Rogers Electric Site (site), Cheverly, Maryland. The basis of the plan represents information from a previous site survey conducted by representatives of R. E. Wright Associates, Inc. and Clean Harbors of Baltimore to determine surficial clean-up requirements. Discussion is outlined by the following objectives and phases.

Mobilization

- Phase I - Surface and Miscellaneous Materials (including UST[s])
Investigation, Sampling and Analysis
- Phase II - Surface Remedial Activities and Disposal of Wastes
- Phase III - Subsurface Investigation, Sampling and Analyses
- Phase IV - Subsurface Remedial Activities and Disposal of
Wastes
- Phase V - Confirmation Sampling and Analysis
- Phase VI - Declaration and Notice of Land Use Restriction

Mobilization

A fully outfitted office trailer and associated sanitation facilities will be mobilized and set up on Blake Construction property outside the gate entrance. The trailer will serve multiple purposes including service as the command center, crew facility and supply storage. An additional trailer may be mobilized as required, for extra storage of necessary supplies.

Site Security

Site security will be provided by a professional agency currently under contract to provide a security at a CHI TSDF. A guard will be placed on-site within the support zone, stationed inside the office trailer. This person will be required to perform perimeter surveys of the site every 1/2 hour during the absence of field crews.

Any observation concerning unlawful or unpermitted entry into the site will be immediately reported to the local police. The guard will then contact the project managers for each specific contractor notifying them of the situation.

Emergency situations that could affect the health and welfare of the general public will be reported immediately to the project managers. The designated response coordinator will then contact all environmental agencies that require notification. A response action, if necessary, will be performed by the designated emergency response contractor (Clean Harbors).

Security personnel on-site will be completely briefed on the contents of the SSH&SP and briefed on a daily basis for certain items to take into consideration during surveys. These individuals will not be allowed outside of the support zone or site perimeter.

Fire Protection

Throughout the project, all contractors will maintain and have on inventory, the correct quantity and type of fire extinguishers for remedial activities. The type of extinguishers

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will be effective for situations as a result of PCB fires, i.e. dry chemical, Purple K.

In the event of an uncontrolled situation, the local Fire Department will be contacted to initiate a response. Prior to any site activity, the site conditions and SSH&SP will be reviewed with the Fire Department to facilitate a response.

Phase I - Surface and Miscellaneous Materials (Including Ust[s])
Investigation, Sampling and Analyses

The primary objective of Phase I is to collect enough data to properly remove and dispose of polychlorinated biphenol-contaminated (PCB) articles, containers, transformers, and other miscellaneous wastes. DLA will utilize the existing laboratory analyses completed by Aptus Environmental in October 1988 for most of the drums on-site. DLA will use the testing laboratory of Spots, Stevens and McCoy (Reading, PA) to sample and analyze the contents of the previously unsampled drums. All transformers will be sampled to determine PCB concentrations. All Capacitors and welder cores will be assumed to have contained PCBs at concentrations exceeding 500 parts per million (ppm).

Phase I will be separated into six (6) major sampling schemes, each addressing general categories of containers.

1. Underground storage tank(s) and non-mobile truck tanker
2. Transformers and miscellaneous electrical equipment
3. Drummed waste (solids and fluids)
4. Sea containers

5. Miscellaneous debris (boats, vehicles, scrap metals, office equipment and materials not otherwise specifically addressed).
6. Roll off containers

Subsequent to this sampling, investigative research and analysis will be performed within three (3) categories.

- A. On-site field screening of samples
- B. Laboratory analysis of appropriate samples for appropriate parameters
- C. Storage of PCB and PCB-contained materials

The following is a discussion of each sampling scheme and applicable investigative procedures.

1. Underground Storage Tanks and Truck Tanker

One (1) sample for submittal to a laboratory will be collected from each underground storage tank and above-ground tank. One (1) additional sample will be collected and archived for further analysis or as a split sample to be analyzed by an independent party. The process of sampling will be as follows in order to collect a representative sample.

- a. Gauge tank contents prior to sampling. Estimate total volume of residual material. Utilize water paste to determine volume of water as it relates to total volume.

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- b. Utilize a coliwasa designed specifically for USTs and tankers. This sampling device will enable field chemists to collect an equal portion of all layers, if present.
- c. Field chemists will document any information relating to sludge volume, water volume, etc. to aid in the final disposal and removal of the tanks and tank contents.
- d. All samples will be placed into appropriate sample containers, preserved and transported with Chain of Custody to the designated laboratory.
- e. Sampling equipment will be decontaminated between tanks and/or vessels, similar to decontamination procedures utilized for PCB contaminated articles, equipment and containers.

Until confirmed otherwise by laboratory analyses, all waste will be considered PCB contaminated for health and safety purposes to insure proper decontamination of sampling equipment and field personnel.

2. Transformers and Electrical Equipment

Located within the various sea containers and main office building are a number of transformers and associated electrical equipment.

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Information on name plates of transformers will be documented, and samples of oil will be collected from bottom valves. All transformers shall be tested for the presence of PCBs by the DLA testing laboratory. All capacitors will be assumed to contain PCBs at concentrations greater than 500 ppm. The welder cores located in one of the sea containers will also be considered to be contaminated with PCB concentrations of greater than 500 ppm to insure the greatest degree of safety during handling and disposal activities.

Simultaneously with transformer sampling, a separate field crew will be inventorying the other electrical equipment manufacturing information to help ascertain absence or presence of PCB contamination.

Absence or presence of PCB contamination of ancillary electrical equipment will be investigated by the following procedures. Electrical equipment covered by these procedures excludes suspected PCB contaminated equipment such as transformers and welder cores.

1. Enter sea containers used to store electrical equipment and document the following:
 - a. Equipment type
 - b. Manufacturer's name, address, phone number
 - c. Serial number, part number, etc.
 - d. Any additional information that may determine, without research, that PCB's are present (i.e. PCB labeling).

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2. Compile a complete inventory of all electrical equipment found within sea containers and those stored around site.
 3. Determine through visual observation whether oil stains are present on equipment. Follow-up these observations with wipe sampling.
 4. Contact each manufacturer to determine whether this equipment has come in contact with PCBs during the manufacturing process and/or if there is a probability that PCB's may be incorporated in the item.
 5. Compile a list according to the following categories:
 - a. PCB present or suspected
 - b. PCB presence or absence not known
 - c. PCB absent
 6. Wipe sample or collect oil sample from items listed under 5a & 5b.
 7. Manage disposal of waste according to analytical results and 40CFR 761 requirements.
3. Drummed Waste

Representative samples from each drum located throughout the property will be collected and archived for subsequent field analysis. Appropriate identification

codes will be placed on each container for ease of tracking throughout the project.

Due to the condition of some drums, re-packing into salvage drums may be necessary to insure the integrity of drum storage until disposal is arranged. DLA contractors will repack, label and mark all drums on-site, in compliance with 49 C.F.R., before they are transported from the site for disposal. All drums will be placed in the on-site garage for temporary, secure storage pending transport for disposal.

4. Sea Containers

Sea containers are being addressed under sampling activities due to past leakage from PCB-contaminated articles which were stored within them. Certain containers exhibit odors that are commonly associated with PCBs. Additionally, many of these same containers exhibit oily stains, also probably associated with leakage within the trailers.

The interiors (walls and floors) of all sea containers will be presumed to be contaminated with PCBs above 50 ppm. Prior to any dismantling activities, four (4) wipe samples will be collected from each side wall, two (2) wipe samples from each end wall, and two (2) chip samples will be collected from each floor. The sample locations will be spaced to provide for representative sampling, and the results of the sample analyses will be used to determine disposal procedures. Negative analyses results will be interpreted to indicate the least

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stringent requirements for PCB disposal. Positive results will cause more restrictive procedures to be used.

5. Miscellaneous Debris

All "debris"; boats, vehicles, metal piping, wire rolls, air tanks, batteries, and other miscellaneous materials not otherwise addressed, will be wipe or chip sampled as appropriate to determine PCB contamination. Because of the varied nature and extent of these materials, a detailed sampling plan is not feasible. Therefore, the exact methods and quantities of samples will be determined on-site, in concert with REWAI, Clean Harbors, MDE and EPA. If contamination does not exist, those materials will be temporarily stored on adjacent property owned by Blake Construction prior to its final disposition (sale, scrap, or disposal as ordinary refuse). The storage area will be determined at the time of need to accommodate Blake's space constraints at that time.

6. Roll-Off Containers

The two roll-off containers present on the site contain PCB-contaminated soil, asphalt, and debris remaining from an initial spill response on the site. Field crews will implement the following procedures to sample each roll-off container.

- a. Select five (5) random locations along the top of debris within each container.
- b. Collect one (1) 16-ounce sample from each sample location at different one (1) foot depth intervals.
Example:

Location #1	0'
Location #2	1'
Location #3	2'
Location #4	3'
Location #5	4'

- c. Composite all five (5) samples into one (1) representative sample for laboratory analysis to determine PCB concentrations.

A. Field Screening

To promote cost-effectiveness, a variety of field tests will be performed on all samples with the exception of solid wastes.

The parameters are basic, but will give an indication of probable contaminants and possible compositing of certain samples for laboratory analysis and potential subsequent disposal scenarios.

This activity will be performed under a controlled environment and consists of the following parameters,

following segregation according to physical state, i.e., liquid, sludge, etc.

Flash Point	PCBs
Halogens	pH
Cyanide	Water Solubility
Water Reactivity	

The samples will be further segregated according to the results of the field screening for the above parameters. Data generated by field screening will be closely scrutinized to potentially reduce the number of samples that require laboratory analyses, by compositing samples with like results. No more than five (5) individual samples will be combined to make one composite sample. The composite samples comprising individual samples which screened positive for PCBs, or which exhibited positive or excessive results during field screening will then be submitted to the laboratory for confirmatory analyses.

B. Laboratory Analysis

Observations from field personnel, field screening results and disposal facility requirement information will be consolidated to determine analytical parameters for each sample. The parameters that are selected may vary from sample to sample, but PCBs will be analyzed on all samples due to the history of site activities.

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The following issues will also be taken into consideration to insure proper handling and cost-effectiveness.

- a. Process generating waste, i.e., transformer
- b. RCRA or TSCA waste
- c. Possibility of PCB cleaning solvents

The primary objectives for all analyses is to provide future transportation and disposal according to applicable local, state, and federal environmental regulations, in the most cost-effective manner.

C. Transportation and Disposal

Once analysis is complete, Clean Harbors, being licensed for hazardous waste hauling and disposing, will transport the waste to one or more of the following disposal facilities as appropriate.

1. Clean Harbors, Inc. Facilities

- a Clean Harbors of Baltimore, Inc. - Baltimore, MD
- b Clean Harbors of Braintree, Inc. - Braintree, MA
- c Clean Harbors of Chicago, Inc. - Chicago, IL
- d Clean Harbors of Cleveland, Inc. - Cleveland, OH
- e Clean Harbors of Kingston, Inc. - Kingston, MA
- f Clean Harbors of Maine, Inc. - So. Portland, ME
- g Clean Harbors of Natick, Inc. - Natick, MA

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2. External Facilities Approved and Currently Used

a. Landfills

- RCRA Only

- (1) Envirosafe Services - Orgeon, OH
- (2) Laidlaw Environmental - Pinewood, SC

- RCRA/TSCA

- (1) CWM/Emelle - Emelle, AL
- (2) CWM/Model City - Model City, NY

b. Incinerators

- RCRA Only

- (1) Thermal Oxidation Corp. - Roebuck, SC
- (2) Rollins Env. - Bridgeport, NJ
- (3) ThermalKEM - Rock Hill, SC

- TSCA Only

- (1) Aptus Environmental - Coffeyville, KS
- (2) Waste Tech - Pittsfield, MA

- RCRA/TSCA

- (1) Ensco/El Dorado - El Dorado, AR
- (2) Rollins Environmental - Deer Park, TX

Transportation and disposal will be conducted consistent with the requirements of TSCA under 40 C.F.R. S761 and EPA's guidance in Remedial Actions for Superfund Sites with PCB Contamination (August 1990).

D. Storage of Contaminated Materials

During field screening, sampling and inventory, all drums will be moved into the on-site garage, stacked in a safe and secure manner, together with the welder cores and transformers for secure temporary storage prior to

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transport for disposal. The garage will be kept locked and secure.

The dismantled sea containers, contaminated soil and asphalt, and other miscellaneous PCB-contaminated solid waste materials will be placed into roll-off trailers and covered with a tarp, for temporary storage prior to transport for disposal.

Phase II - Surface Remedial Activities and Disposal of Wastes

Phase II will be initiated upon completion of laboratory analysis and acquisition of disposal approvals. A combination of remedial activities to address USTs and sea containers is also included under Phase II. The following is a listing of items/activities to be addressed.

1. UST removal(s) and disposal
2. Drum removal and disposal
3. Transformer removal and disposal
4. Sea container dismantling and disposal
5. Welder Core removal and disposal
6. Roll off removal and disposal

There are certain limitations for explanation of each activity, since analytical results determine specific handling methods of generated wastes. Assumptions are made under each of the following headings to facilitate submittal of this document. Actual removal and disposal procedures may be later modified as analytical information becomes available. All transformers, drums, containerized cores, and other articles will be labelled

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and packaged in accordance with titles 40 and 49 of the Code of Federal Regulations.

1. UST Removal

Prior to removing the USTs, the Fire Marshall for Prince George's County will be contacted for permit requirements. The subcontractor for UST removal has established standard operating procedures for removal of USTs and the handling of generated waste streams, and for confined space entry. These procedures are attached as Appendix F, and will be followed as applicable (as dictated by site specific conditions). Contents of tanks may contain elevated concentrations of PCBs and may require compliance with regulations of 40 CFR 761.79. Otherwise, they will be handled as applicable for the waste materials as they are verified. Subsequent to the removal of the tanks, soil samples will be collected from a depth of one foot at the bottom of the tank excavation to determine if the USTs have leaked, in accordance with the standard operating procedures in Appendix F.

2. Drum Removal

Drum removal will be accomplished solely by DLA. At the time of drum removal, all DOT shipping names and designated disposal facilities will have been determined. Transportation vehicles will then be dispatched and will be loaded by site personnel under the supervision of field chemists.

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A major objective for drum removal is to determine whether an opportunity is available for shipment as a tanker load. This will consist of pumping liquid drums and handling the empties as a separate waste stream, as this could improve job efficiency and cost-effectiveness.

DLA contractors will perform the drum removal from the site. The DLA contractors will adhere to the site health and safety plan and will utilize EPA's off-site disposal policy for all drums. DLA will modify an existing disposal contract for PCB's at Fort Meade, MD, for which the disposal procedures are attached as Appendix G. If any drums are determined through laboratory analysis to contain RCRA wastes, DLA will modify an existing RCRA hazardous waste contract for removal and disposal. The procedures for this work are contained in Appendix H.

3. Transformer Removal

Transformer removal will be accomplished solely by DLA. There are three (3) levels of contamination that determine handling methods of empty and full transformers.

- a. < 50 ppm
- b. 50 - 500 ppm
- c. > 500 ppm

All oil from each transformer will be drained prior to shipment and segregated according to PCB concentration.

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Transformers will then be shipped via flatbed trailer directly to the disposal facility.

DLA will perform the transformer removal and disposal off-site, modifying an existing contract for PCB disposal for Fort Meade, Maryland. Refer to Appendix G for disposal methods and spill responsibility. All capacitors on the site will be assumed to contain PCBs at concentrations that exceed 500 ppm. DLA contractors will follow the EPA's off-site disposal policy.

4. Sea Container Dismantling and Disposal

As discussed within the work plan, all interior surface material and debris associated with the sea containers such as wood, plastic, etc., will be managed as PCB contaminated waste and deposited into roll-off containers for temporary on-site storage pending disposal.

The solvent proposed for cleaning of metal surfaces (sheet metal behind interior paneling and flooring) of the sea containers will be #2 fuel oil. This solvent is being proposed due to the flash point (> 140 degrees F) and the assumption that PCB contamination behind wooden walls will be minimal, thus not requiring intense cleaning to meet regulatory limits. This assumption stems from the fact that a high percentage of PCB impact to sea containers is on the floor and not along wall surfaces. Metal wall surfaces are presently covered by the wooden panels (which would have previously been

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disposed of as PCB contaminated materials) and should not have come in contact with PCB.

Upon completion of #2 fuel oil cleaning, all surfaces will be washed with an alkaline detergent to remove the petroleum residue. Any debris generated from the above process will be deposited into roll-off containers and managed as PCB contaminated waste regardless of the waste classification, i.e. non-hazardous vs. hazardous.

5. Welder Core Removal and Disposal

Welder core removal and disposal will be accomplished solely by DLA. It is assumed that welder cores are contaminated with PCBs above 500 ppm. DLA will modify an existing contract for the disposal of PCBs from Fort Meade, MD, for the disposal of the welder cores. See Appendix G for the disposal methods and spill responsibility. The welder cores will be properly packaged, labeled and marked in compliance with 49 C.F. R., prior to transport from the site. DLA contractors will follow EPA's off-site disposal policy.

6. Roll Off Removal and Disposal

The material contained within the two roll-offs is assumed to be contaminated by PCBs only, and therefore will be managed as a TSCA-regulated waste.

Because the roll-offs currently contain debris in excess of legal transportation limits, each will be excavated to legal limits with the excess material placed in

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another container. All of the waste will then be transported to a TSCA landfill (CWM, Emelle, AL or CWM, Model City, NY).

Phase III - Subsurface Investigation, Sampling And Analyses

The presence or absence of PCBs in surface pavement and the soil, as well as the concentrations, if present, will be determined based upon a shallow soil boring and sampling program for the site. This assessment will follow the removal of surface materials as described in Phase II. REWAI's approach to this task will be as follows:

- o All soil boring work will be conducted according with the Site HASP and will be conducted in level C personal protection.
- o Soil borings will be advanced to a total depth of approximately three feet with a four-inch I.D. hollow-stem auger drill rig.
- o Soil borings will be described and logged by a REWAI geologist. Soil characteristics described will include soil color and mottling, texture, odors, and signs of staining or discoloration.
- o The locations of the proposed soil borings will be based upon staggered 15-foot grid intervals within the rear of the Rogers Electric site where the preponderance of contamination is thought to exist. Because contamination of the front of the site is not suspected, subsurface sampling will be performed at a lesser

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frequency there. In addition, eight borings will be located outside the fenced boundary of the site (two on each side. Subsequent to site clean-up and removal of all contaminated materials, confirmation sampling will be performed which will include the entire Rogers Electric site.

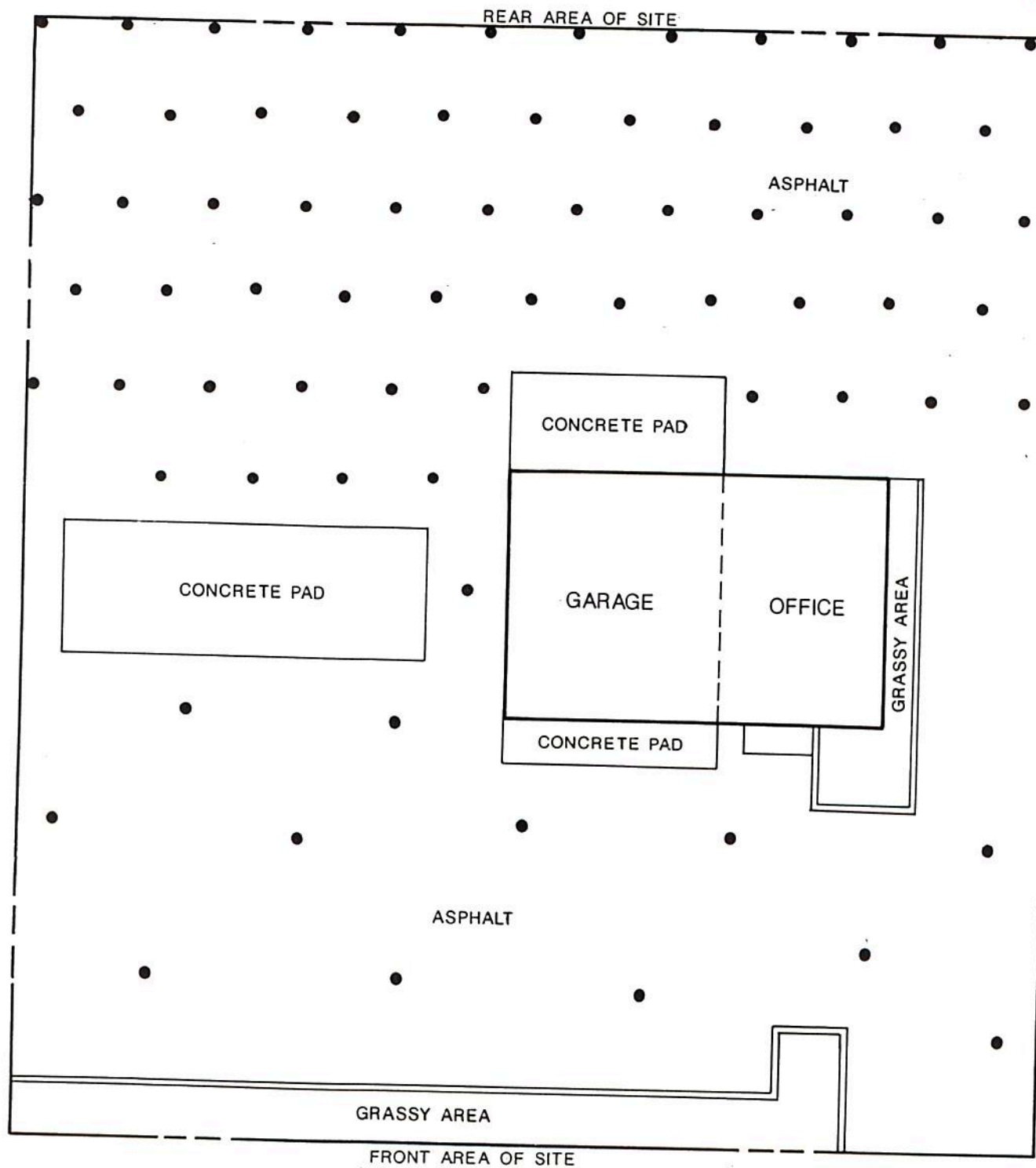
- o Continuous samples will be collected with a two-inch diameter, steel, split-spoon-type soil sampling device.
- o Clean split-spoon samplers will be used for collection of each sample. At a minimum, split spoons and auger flights will be decontaminated between each boring location with a brush and alconox solution followed by high pressure steam cleaning. Other decontamination procedures will be used if required by the EPA site coordinator.
- o Three samples will be collected at each boring location. Composite samples will be collected from the 0- to 0.5-foot asphalt layer by collecting initial auger cuttings from the overlying macadam. Soil samples from the 0.5- to 1.5-foot and 1.5- to 3.0-foot depths will be collected at each boring location.
- o The soil from each depth increment will be placed into a 4 ounce [125 milliliter (ml)] glass volatile organic analyzer (VOA) jar with teflon-lined lid. Samples will be labeled and cooled for transport and submission to the laboratory. Proper chain-of-custody forms will be

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completed and will accompany the samples throughout processing and analyses.

- o In addition to the boring and sampling as described above, two sediment samples will be collected from the adjacent stream at a depth of one foot below stream bottom. One sample will be collected near the upgradient boundary, and one will be collected near the downgradient boundary.
- o The proposed sampling locations are shown on Figure 3-1. They may be field adjusted based on site conditions, and any such deviations from this plan will be noted on the figure.
- o All samples will be submitted to Wright Lab Services, Inc. (WLSI) for the analysis of total PCBs by EPA approved test procedures in accordance with Certified Laboratory Procedure (CLP) methods. Analysis by SW-846 Method 8080 requires extraction of each sample within seven days of collection; therefore, samples will be submitted to the laboratory prior to the end of each week's activities.
- o Each boring will be backfilled to the surface with auger cuttings immediately following sample collection.
- o Sampling locations will be identified in the field and located on a site map.

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LEGEND

- PROPOSED SAMPLE POINT LOCATION



FIGURE 3-1

**BLAKE CONSTRUCTION
CO., INC.**
RODGERS ELECTRIC SITE

BASE MAP WITH PROPOSED
SAMPLE POINT LOCATIONS

drawn JST II	approved TKG	drawing no.
checked TKG	date 8/24/91	M91130-002-AA



F. E. WRIGHT ASSOCIATES, INC.
earth resources consultants

middletown, pa.
king of prussia, pa.

westminster, md.
dallas, tx.

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(Red)Phase IV - Subsurface Remedial Activities and Disposal of Wastes

Where site specific conditions warrant examining in-situ treatment technologies, an analysis will be made to determine the feasibility, cost-effectiveness, and efficiency of those treatment options. Upon approval by all concerned regulatory personnel, those areas may be treated and monitored as necessary.

The extent of any necessary excavation, removal, and off-site disposal of soils will be determined by the results of the site characterization study. For the purpose of presenting a preliminary work plan, it is assumed that the first phase of excavation will take place in the same area as previous soil removal activities performed in the spring of 1991. Analytical results from that past work indicates shallow PCB soil contamination above regulatory limits and should be addressed.

The results of the Phase III effort will determine the exact extent of additional excavation and disposal necessary at the site. Disposal of PCB-contaminated soils and asphalt found on-site will be conducted in accordance with the requirements of 40 C.F.R. Part 761, the National Contingency Plan, and the EPA's Guidance on Remedial Actions for Superfund Sites with PCB Contamination. The storage of all PCB-contaminated soils, asphalt, transformers, welder cores, and other PCB-containing materials pending disposal will be in accordance with the provisions of 40 C.F.R. Part 761.

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(Red)Phase V - Confirmation Sampling and Analyses

Once the above-described work has been completed, it will be necessary to perform sampling and analyses to confirm the adequacy of the remedial effort. This phase of work will be performed by REWAI in adherence to the criteria and methods outlined in EPA's Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup (EPA-560/5-86-017, May 1986), 40 CFR Part 761, Polychlorinated Biphenyls Spill Cleanup Policy; Final Rule, and other applicable sampling protocols.

The methods for sample point selection as set forth in the grid sampling document consist of the generation of a hexagonal grid sample design that will ensure a high probability of PCB detection should it still exist.

All sampling, sample transport, and laboratory analyses will be performed in accordance with QA/QC procedures as described herein and in the above-mentioned guidance document.

Phase VI - Declaration and Notice of Land Use Restriction

Within 10 days after the completion of all work required by the work plan, Blake will record an original executed declaration and notice of land use restriction among the land records of Baltimore County, Maryland. Blake will provide proof of recording to EPA and the state within 10 days after completion of work. The declaration will describe the location and extent of all PCB contamination in excess of 10 ppm and will require that the site be decontaminated in accordance with the PCB Spill Cleanup Policy when the site is converted to another use.

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4.0 WRIGHT LAB SERVICES, INC.
QUALITY ASSURANCE/QUALITY CONTROL PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

4.0 WRIGHT LAB SERVICES, INC.
QUALITY ASSURANCE/QUALITY CONTROL PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

I. QUALITY ASSURANCE OBJECTIVES

- A. To maintain a continuing assessment of the accuracy and precision of data generated for this project.
- B. To ensure the scientific reliability of the laboratory data.
- C. To provide a permanent record of analytical performance as a basis for validating data.
- D. To provide recordkeeping to help ensure sample integrity.
- E. To ensure that the analytical work produced for this project will withstand legal scrutiny in regulatory actions.

II. QUALITY ASSURANCE SYSTEM

- A. Sample Collection. In order to produce meaningful analytical data, a laboratory must have samples which are representative of the system from which they were taken. If the representativeness and integrity of the samples received in the laboratory cannot be verified due to inadequate sampling procedures, the usefulness

of the analytical data produced for these samples is limited.

For this reason, written sampling procedures are used when personnel from our laboratory are responsible for sample collection. These procedures are included in our Standard Operating Procedures Manual (SOP) for sample collection, handling, and identification. Using this manual, our sampling personnel ensure that collected samples are representative of the original systems, fully labelled and identified, and properly preserved and transported to the laboratory.

B. Glassware Cleaning.

1. Sample Bottles - WLSI purchases precleaned bottles from reputable suppliers for all drinking water analyses. Sterilized bottles or Whirlpak bags are used for all microbiological samples. Pre-cleaned bottles are also used for all samples that are to be analyzed by GC, GC/MS, TOC, and TOX. Amber glass bottles of various sizes with teflon lined lids are available for Wet Chemistry and metal analyses. High density polyethylene bottles are also available for metal analyses. Food-grade disposable low-density polyethylene bottles are used for most sewage samples. All bottles are disposed of after a single sampling.

2. Glassware for Organic Analyses - Clean glassware is critical for WLSI's organic analyses especially since the majority of our organic work is done in the parts per billion range. Failure to properly clean glassware will lead to a myriad of problems in organic analyses. Particular glassware of interest include soxhlet extractors, kuderna-danishes, concentrator tubes, or other glassware used in organic preparation analyses. These pieces of glassware are particularly important because of the concentrations that occur at the end of most organic extractions. In the process of concentrating a sample, contaminating substances encountered from the glassware are also being concentrated. The following steps are followed for the cleaning of organic glassware:
 - a. Glassware which has come into contact with high levels of organic components (i.e. high level standards or particularly dirty samples) are flushed with the extraction solvent prior to being sent for further washing. This flush will take the majority of the organics off of the glassware so that these organics do not contaminate other glassware at later stages of the washing process.
 - b. The glassware is placed in hot water containing an Alconox cleaner and allowed to soak at a temperature of 50 degrees Celsius or higher. This allows most particulate matter to float

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off of the glassware. Approximately a 5 minute soak is sufficient.

- c. The glassware is rinsed with hot tap water to flush away the floating particles. If visible films or contamination of the glassware still exists, steps d and e are used. Otherwise, the cleaning process is continued at step f.
- d. Glassware that appears to contain either hard water deposits or other trace residues is cleaned further by soaking in a solution of "Contrad 70" alkaline cleaner. This removes greases, distillation residues, insoluble organic residues, hard water residues, etc. This step is performed on an as-needed basis when a noticeable problem is seen with the glassware.
- e. If step d is performed, the glassware is again rinsed with hot tap water to rinse away particulate materials loosened by the Contrad 70.
- f. All glassware is next distilled water rinsed to remove metallic deposits from the tap water that has been used.
- g. All glassware is placed in an oven at 80.- 100 degrees Celsius until dry.

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- h. Immediately prior to use, all organic glassware is flushed with the same solvent that will be used for the analysis, to remove any materials that may be present after this cleaning procedure.
- C. Preservation Chart/Sample Volume Requirements. WLSI uses a chart which designates the container, sample size, preservative, and maximum holding time for each parameter that is analyzed. See Table 1.
- D. Chain-of Custody Procedures. All samples must be accompanied by a chain-of-custody form. information to the laboratory regarding sample collection and analyses. Strict chain-of-custody guidelines are followed by the laboratory in an effort to ensure the integrity of our samples. Samples being tested for litigation or regulatory purposes may require special documentation on the chain-of-custody forms. Specific information can be found in the SOP governing chain-of-custody documentation.
- E. Sample Receipt. Upon arrival in the laboratory, samples are received by a sample custodian who ensures that all samples are accompanied by a proper chain-of-custody. The chain-of-custody will be signed by the person delivering the samples to relinquish the samples to the sample custodian. The sample custodian will then sign the form to receive the samples into the custody of the laboratory. The date and time are

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recorded with both signatures. See the SOP for a more detailed look at the sample receipt process.

F. Acceptance/Rejection Criteria. When a sample arrives in the laboratory, a decision is made to accept or reject the sample. WLSI reserves the right to reject a sample upon receipt in the laboratory if any of the following conditions occur:

1. The sample is not properly identified on the sample label and/or the chain-of-custody form.
2. The sample has exceeded the holding time for the requested analysis.
3. The incorrect preservative was used during sample collection.
4. Incorrect sampling protocols were used during sampling (i.e., a sample not being filtered in the field for dissolved metals).
5. Improper sample container was used.
6. Insufficient sample is present to perform the requested analysis.
7. Improper storage or transport of sample has occurred prior to receipt.

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8. Excessive amounts of sample have been collected or other conditions exist which would make disposal difficult.

G. Logging-In Procedures. To ensure sample accountability, all samples receive a unique sample identification number upon receipt in the laboratory. This identification number is recorded on the chain-of-custody for the sample and is placed on the sample bottle and in the laboratory computer system. This number is used to track the sample throughout the laboratory and will appear on the final sample report. Detailed information on sample log-in procedures is contained in the SOP for Sample Receipt.

H. Sample Identification and Control. Samples are labelled upon receipt with a unique sample identification number. This number along with the information from the chain-of-custody form is entered into the Laboratory Information Management System (LIMS). The computer contains all information necessary to locate and track the sample. It also contains the information regarding specific analyses and turnaround commitments. Using the computer system, laboratory personnel can access sample information by sample number, client name, project #, requested analyses, C-O-C #, etc. Sample identification and control is further detailed in the SOP for Sample Receipt.

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- I. Sample Storage. Because our samples have different storage requirements, samples are maintained in various locations to prevent sample deterioration. Samples are assigned to refrigerators, freezers, or room temperature cabinets to meet the storage requirements for particular analyses. After results are reported for a sample, samples are held for a two week period unless holding times warrant earlier disposal. At the end of the two-week holding period, samples will either be discarded by the laboratory or returned to the client. WLSI will not be responsible for disposal of materials known or suspected to contain dioxins or dibenzofurans. Special storage requirements for legal or other reasons will be met upon request.
- J. Sample Disposal. WLSI's policy regarding sample disposal is defined by sample matrix.

Aqueous Samples: Under normal circumstances, aqueous samples are disposed of by the laboratory free of charge after completion of the requested analyses. WLSI, however, reserves the right to return aqueous samples if they are found to contain such high levels of contaminants that they make disposal difficult. When this occurs, WLSI will notify the client in advance of the return.

Nonaqueous and Solid Samples: WLSI always encourages the return of solid waste and/or nonaqueous samples. WLSI realizes that the generator of a waste material is ultimately responsible for that waste through disposal. Because of laws that clearly state this

responsibility of a waste generator, WLSI encourages its clients to accept responsibility for their samples once the analytical work is complete. If prior arrangements have not been made for laboratory disposal of a nonaqueous waste, approximately two weeks after completion of the analyses, WLSI will either personally deliver the completed samples to the client or return the samples by mail. The costs of these returns will be paid by the laboratory under normal circumstances. WLSI, however, reserves the right to bill shipping costs of the samples for which special shipping arrangements must be made. During these times, WLSI will notify the client prior to shipping.

- K. Instrument Records. Written records are kept for all of our laboratory instruments and equipment. These records include the name of the manufacturer, purchase dates, service contracts, serial numbers and other pertinent information relating to specific instrumentation. These records are stored in file cabinets in the office of Christy Pasquariello, Business Manager. Instrument records are also stored in our information management system for easy access.
- L. Standard Methodologies. WLSI relies upon five main references for the methodologies used in the laboratory as follows:

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1. "Methods for Chemical Analysis of Water and Wastes," U.S. Environmental Protection Agency, 1979. Revised 1983.
2. "Microbiological Methods for Monitoring the Environment, Water and Wastes," 1978, EPA-600/8-78-017, U.S. Environmental Protection Agency.
3. "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 16th Edition.
4. SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition, September 1986.
5. "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater," U.S. Environmental Protection Agency.

Standard Operating Procedure Manuals are available for each of the laboratory areas. These manuals are comprised of clear, complete written instructions for completing each standard test performed by the laboratory. Also included are references to the source of the method (see above sources), safety, quality control, and standard materials used in the analysis. See Table 2 for a list of the standard methods used in the laboratory.

M. Reagents/Reference Standards.

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1. Reagents. Reagent quality is of extreme importance to laboratory results. The composition of specific reagents and solutions used are defined by the method for which they are prepared. Each laboratory area has defined standard operating procedures which govern the purity of reagents being used. A record of all chemicals received into the laboratory is maintained by Pamela Moore. When reagent is received in the laboratory, a record is made of the chemical name, manufacturer, lot number, date received, supplier, quality or reagent grade, expiration date, and storage location. The initials of the analyst making the entry is recorded also. The storage of the reagents is governed by the manufacturers recommendations and by the analytical procedures for which the reagents are used. Special storage requirements for individual reagents are listed in the chemical reagent logbook. See Figure 2.
2. Reference Standards. A standard reference material is a substance which by terms of identity, purity, and potency provides a reference value for a particular analysis. The National Institute of Standards and Technology provides numerous Standard Reference Materials (SRMs). Unfortunately, the cost of NBS standards prevents their exclusive use within the laboratory. In most cases chemically pure substances are purchased from supply houses for use as calibration standards. Standards which have been checked against National Bureau of

Standards SRMs are purchased from the supply houses (ORIGINAL) when available.

Reference standards are used in all analyses requiring comparison to a chemical substance. The reference standards used are the ones specified by particular methods, by legal regulations, or other specification. Records are maintained for each reference standard used including the identity, purity, potency, date received, lot number, supplier, storage and handling procedures, and any testing done to assure the quality of the material. Reference standards not meeting quality criteria are not used.

N. Laboratory Analyses.

1. Test Scheduling. Test scheduling is accomplished through the laboratory information management system and is coordinated by the laboratory section leaders. The section leader from each of the laboratory departments prints a "Scheduling Analysis Report" (See Figure 3)) at the beginning of each day. This report lists the outstanding analyses from each of the departments. Each department is designated with a unique number which is used in the scheduling and recording of laboratory analyses, the assigned numbers are as follows:

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- 01 - Gas Chromatography - Purge and Trap
- 1A - Gas Chromatography - Direct Injection
- 02 - Gas Chromatography/Mass Spectroscopy
- 2A - Gas Chromatography-Industrial Hygiene
- 03 - Metals
- 04 - Water Quality
- 05 - Microbiology
- 06 - Subcontracted Analyses
- 07 - TOX/TOC
- 8A - Asbestos in Air
- 8B - Bulk Asbestos
- PD - Prep Department
- 20 - Field Analyses

2. An additional report generated by WLSI's LIMS is the "Unfinished Samples by Department report." (See Figure 4). This report generates a list of the unfinished samples in a particular department or the entire laboratory in order of lab sample number. This report is particularly useful to the section leaders because it generates an overall list of unfinished analyses within a department in the order in which the samples arrived in the laboratory. Using these LIMS reports, the section leaders assign tests to the laboratory analysts. The analysts enter the computer system and "schedule" the analyses. This is done by selecting Number 3 from the main laboratory menu on the computer system. See Figure 5. This area is entitled "Test Scheduling". The analysts must enter an access code to enter this area. Each analyst has a unique access code which permits them

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to enter different areas of the laboratory computer system. Once the access code is accepted the analyst enters the test department, test ID code, date of scheduling, their initials, and the instrument number. The computer then marks the samples for which this is done as "scheduled." The information entered by the analyst is recorded in the system for use by other laboratory personnel. Anyone using the computer system to inquire on the scheduled samples will see this information.

3. Analyses. Once a test or group of tests is scheduled, the analyst performs the analyses according to the appropriate method. The method of choice will depend upon the request of the client. Standard methodologies used by WLSI are listed in Table 2. Often sample state and detection limits desired will govern the method used for a particular analysis. The detection limits for each analysis are calculated annually and are maintained in the laboratory areas. The detection limits calculated are the optimum limits and are rarely used as quantitation limits.
4. Record of Analyses. While performing a test, analysts record all necessary information in bound laboratory notebooks. The notebooks are test specific and contain all necessary information for the testing being done. A record is kept of the date the analysis was performed, the initials of the performing analyst, the laboratory sample numbers, calculations involved, and comments made

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during the testing. This data is then entered into the LIMS by the analyst, and the notebook is given to the section leader for review. The leader responsible for the particular lab section in which the analysis was done reviews the raw information in the notebook and the data entry into the computer system. Once approval has been given by the section leader, the information is designated "batch approved" in the LIMS. Once all the analyses for a particular sample have been given "batch approval," the report is given to the Laboratory Manager for final review. In the absence of the Laboratory Manager, the Assistant Laboratory Manager will perform the final review of the sample.

5. The actual entry of the data into the computer system is done from Number 7 of the main laboratory menu. This section is entitled "Results Entry." Results are entered by the performing analyst. The date completed, analyst initials, instrument number, and quality control information are all recorded during results entry. The results are entered as "batches" where the entire group of sample numbers completed by the same analyst on the same date are entered together. This is very useful since all the quality control information (e.g., check samples, duplicates, spikes, and surrogate standards) done with that particular group of samples can be entered once and still be associated with each of the individual samples.

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Each "batch" is assigned a unique number which is stored in the LIMS for sample tracking purposes.

O. Verification of Data (Quality Control).

1. WLSI uses the following internal and external quality control procedures to verify that the data produced by the laboratory has the required degree of accuracy and precision. The following protocols are followed for all samples unless a particular method or client requires more stringent QC procedures than are listed. Each SOP defines any QC procedure which differs from that described in this manual. Special client requests for QC are met as needed. WLSI reserves the right to review special client requests and make fee adjustments as needed for data packages, Tier II deliverables, etc.

a. Duplicate Determinations. A duplicate analysis on one out of ten samples is done for every parameter or test determined. The LIMS informs the analysts as to which samples are to be duplicated. The LIMS assigns a random number to each test (0 through 9) and then the computer control file picks one of these numbers for duplicate analysis. The frequency of duplicate analyses is determined by the control file and can be set at any value that management desires, however WLSI has chosen the frequency of 10%. The LIMS makes control charts. Each test has a separate control chart

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showing the percent recovery versus time. In addition, the LIMS calculates the relative percent differences (RPD) for each test using the following equation:

$$RPD = \frac{S - D}{(S+D)/2} \times 100\%$$

Where: S = sample result
D = duplicate result

In addition, upper and lower control limits are determined by the LIMS on a continuing basis. The LIMS uses the RPD as means of acceptance or rejection of data.

Note: For organic prep work, one sample out of ten will be extracted twice, and submitted to all cleanup steps before analysis on the GC or GC/MS. For metals, one in ten undergo duplicate elemental analysis and one in twenty undergo a duplicate digestion or extraction.

- b. Spiked Sample Determinations. One sample out of every twenty samples is spiked with a specified quantity of each analyte to be determined. The section leader is consulted as to the quantity of analyte to spike to a given sample. The % recoveries of all spikes are documented in the notebooks, and reported on control charts that are maintained by the LIMS. In addition, upper and lower control

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limits are maintained by the LIMS. This % recovery is used to determine the acceptance or rejection of the data. Standard deviation calculations are made of the % recovery values.

- c. Method blanks. A method blanks is analyzed with every set of samples analyzed. A method blanks consists of deionized water carried through an analytical method as a sample. This involves the addition of all reagents and the submission of the sample to all extractions, etc. applicable to the method.
- d. Surrogate Standards. Every analysis performed in the GC and the GC/MS sections use surrogate standards. These surrogate standards are defined in the SOP of each test. Surrogate recoveries are recorded in laboratory notebooks and also entered into the LIMS. The LIMS reports the recoveries of the surrogates on control charts. The upper and lower control limits are defined by the SOP, and the LIMS uses these to accept or reject the data.
- e. Check Samples. Every analysis run in the metals section of the laboratory has associated check samples. Similarly, most water quality analyses also have check samples included in each analytical run. A check sample is a stable material containing the analyte of interest, preferably in a matrix or substrate similar to that for which the analytical method

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was designed. Check sample can either be supplied commercially by a private supplier, by the EPA, or can be prepared in-house using reference standards or materials from a different lot or bottle than the calibration standards. Data on the check samples are recorded in the laboratory notebooks and entered into the LIMS. The frequency with which check samples are run depends upon the particular analysis and/or method. The calculated recoveries are plotted on a control chart and compared to a previously established confidence limit for the analysis. This confidence limit is updated by the LIMS by the QA Officer on a monthly basis. The LIMS accepts or rejects the check sample based upon the calculated confidence limits. Rejection of a check sample will require the reanalysis of the batch of samples associated with that check sample.

- f. Interlaboratory Testing. Interlaboratory testing is used by WLSI to monitor the performance of individual analysts. A sample is analyzed by more than one analyst and the results are compared. The data is maintained in the LIMS and is accessible by analyst, test id, instrument, or QC type. Over a period of time, bias by a particular analyst may become evident by analyzing the data in the LIMS. When bias is noted, the analyst is made aware of the problem and reason for the bias

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determined. The analyst then performs routine analysis to verify that acceptable precision and accuracy are obtainable before they may continue performing sample analyses.

- g. Double Blind Samples are submitted for many of the more common tests that are run by the analysts. These are either retests of previous samples and are entered into the LIMS under a different and fictitious client name. These double blind sample results are compared to the previous test results and evaluated. The results are reported to the section leader on a monthly basis. The value of analyzing blind samples is that the analysts are unaware that they are participating in a QC check and as a result they do not perform the samples in a special way that may bias the results.
- h. Proficiency and Certification Samples. WLSI participates in all required proficiency testing provided by the state and the EPA. WLSI analyzes at least one complete set of EPA water supply certification samples per year, obtained directly from EPA. The concentration of the analytes are not known by WLSI, but must be reported within the limits defined as acceptable by the EPA, or the laboratory may lose its accreditation. In addition, WLSI analyzes one complete set of EPA proficiency

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samples per year, obtained directly from EPA with a range of expected values provided. In addition, WLSI participates in the EPA bulk proficiency testing programs for asbestos, air-borne asbestos and radon, also, Water Pollution Supply testing for the New Jersey Department of Environmental Protection as well as other state mandated tests.

- i. Test Specific Quality Control. The above state quality control procedures are performed for all samples in addition to the necessary calibration standard and reagent blanks performed with each and every batch of samples. The calibration standards used in a particular method are outlined in the SOP. Each method has a specific number and concentration range established for the calibration standards used. Reagent blanks are very similar to method blanks and either may be used in a given method. Reagent blanks contain all the reagents used in a particular method but do not necessarily undergo any extractions, manipulations, etc. from the method. Reagent blanks are used for the sole purpose of contamination checks of test reagents. Method blanks are run as a check of reagents and accompanying method procedures. Please refer to each SOP for specific QC details.

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P. Deficiency Corrections. As stated above, WLSI uses control charts to monitor analytical performance. The LIMS constructs control charts and calculates the upper and lower control limits. Warning limits are marked at plus and minus two standard deviations, and rejection limits are marked at plus and minus three standard deviations. Normal statistical methods are used to interpret the charts. The measurement process is out of control when:

- (i) one or more points are beyond three standard deviations;
- (ii) two or more consecutive points are outside of two standard deviations;
- (iii) a run of four points occurs outside one standard deviation;
- (iv) a run of seven or more points (this may be either seven consecutive points above or below the mean or seven consecutive points increasing or decreasing) occurs.

When any of these instances occurs, the analysis stops and the reason for the out-of-control situation investigated. The response to the out of control situation will depend on the analysis and the SOP should be consulted. In addition the section leader is informed of the problem and he/she does not allow any further analyses until the problem has been corrected. Corrections may include reassay of check samples,

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remaking of standards, remaking of check samples, cleaning of instrument or other SOP mandated operations.

Q. Report Generation.

1. Approval Sequence. WLSI has an established sequence of approvals that a lab report undergoes before being issued to a client. The individual analyses on the report are initially reviewed by the analyst while performing the testing. The analyst assures that all quality control information is correct before entering the results for the analysis into the computer system. The data generated by the analyst is reviewed by the section leader responsible for the particular analysis. The section leader reviews both the raw data in the laboratory notebook and the data as entered into the LIMS. (See Record of Analysis section of this document.) Once all the data has received approval by the section leaders, the report is marked as complete in the LIMS and is sent to the laboratory manager for approval. The laboratory manager reviews and approves the report information using Number 8 from the main menu of the laboratory computer system. (See Figure 5). This area is entitled "Sample Inquiry and Approval." Access to this area is controlled by access codes. Only the Laboratory Manager and Assistant Manager have the proper codes to admit entry to the sample approval options. The computer supplies the Laboratory Manager with all the analytical results for a

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particular sample number. It also supplies the quality control information generated with the analyses. The quality control information listed is accompanied by the acceptance/rejection recommendations of the section leader and the computer system. Each quality control parameter has an acceptable range stored within the memory of the LIMS. The acceptable range is unique for each quality control parameter entered and is established according to the laboratory protocol outlined in the Data Verification section of this document. When an analyst enters a quality control result, the computer screen will display and acceptance result of "yes" or "no" based upon the established limits it has stored for that QC parameter. The Section Leader can override the "yes" or "no" designation for a particular quality control result if necessary. The "Y" or "N" will, however, flash on and off if it has been changed. This will inform the laboratory manager that a conscious decision was made to change the acceptance of the quality control result. The Laboratory Manager then discusses the result with the section leader, if necessary, and makes the final decision for the acceptance or rejection of the result. Once the Laboratory Manager accepts all of the analytical results as accurate, he approves the sample. Once a sample has been approved by the Laboratory Manager, it is printed by the Laboratory Receptionist or the Accounts Payable personnel. A hardcopy of the lab report is forwarded to the Laboratory Manager for a

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signature. In the absence of the Laboratory Manager, the Assistant Laboratory Manager will perform the approval duties listed above.

2. Report Format and Contents. Figure 6 contains a sample report as it would be addressed to a client. All of the necessary information is included on the report. The report lists the laboratory sample number, the client name and address, the job name, job number, location identification, sample state, sample collector, purchase order number (if available), date sampled, date received, date completed, and a discard date. This information is included in the heading of the report. In the actual body of the report, the test/parameter being analyzed is listed along with the results, units, and limit of detection for the particular test. Also included may be "line item comments" where a comment is attached directly to a particular result, and "sample comments" where comments are attached at the end of a report. These comments pertain to the sample as a whole rather than a particular test from the sample. At the end of the report a quality control section is included. This section lists the quality assurance parameter, the result of the quality control, the units, and quality control type. The results of all spikes and duplicates performed on the sample are contained in this area. Also included in this area is percentage recovery of surrogate standards. The results of check samples and blanks

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performed with the sample analyses are not included on the final report. At the very end of the report is the signature of the Laboratory Manager. For samples which include only asbestos in air testing, the laboratory report is signed by the Laboratory Asbestos Specialist. For samples which include only bulk asbestos testing, the laboratory report is signed by the Assistant Laboratory Manager.

3. Report Revisions. Revisions can only be done to a finalized report by the Laboratory Manager or Assistant Manager. Revisions to analytical results are made through section 7 of the main laboratory computer menu. The revisions are made to the results in the batch and the batch is "reapproved" by the person making the revisions. Additions, deletions and revisions of comments can all be performed by the Laboratory Manager and Assistant Manager in this area. If final approval has not been given to a sample, section leaders may also revise results and comments for a sample. Once a sample has had final approval, however, only the laboratory managers have the appropriate access codes to allow for the revisions.
4. Report Additions. Additions to a laboratory report will be made either by the Laboratory Manager, the Assistant Manager, or the Sample Custodian, Lori Brown. If additional tests are requested on a sample that has been started but not finished by the laboratory, the Sample Custodian enters area 1 of the main laboratory menu and adds the test to

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the appropriate sample. If the sample in question has been given final approval and reported, a new sample number must be given to the sample and the sample must be reentered into the laboratory system. All the information for the sample will be the same as originally entered. The new laboratory sample number will be the original four-digit chain-of-custody number followed by the letter "A" then followed by the line number from the original chain-of-custody that the sample was located on, e.g. XXXXA-X. Because the sample is reentered as a separate laboratory number, the additional tests will appear on a separate report. A sample comment is included on the new report that states, "These analyses were performed on the sample as received under laboratory sample number XXXX-X. No resampling of the material occurred."

R. Recordkeeping.

1. Recordkeeping is extremely critical in an environmental laboratory to assure the validity of the data it produces. WLSI produces two type of records: computerized records, and hardcopy records. The computerized records are of course those generated by the entry of information into the laboratory information management system. The information entered into the laboratory computer system is saved daily on video cassette tapes. This is accomplished through a "system back-up" which is initiated by the Sample Custodian or Third Shift Captain at the completion of their

ORIGINAL
(Red)

shifts. During the week, the daily "back-up" includes the information added to the computer system for the day in which the back-up is done. The "back-up" that is done on Fridays is a "full back-up" and is a recording of the entire laboratory system as it exists at the time of the recording. The video cassettes on which this information is recorded are kept in the laboratory computer room in order of the "back-up" date. The actual memory of the computer also contains a "sample history" area where sample information is stored after it has been given final approval. The information for a particular sample is kept in the active area of the system for a period of one month. After this time, the information is transferred to the "sample history" file where it is retained indefinitely. During the "full back-up" done on Fridays, the history file is recorded along with the active files so that a computer failure would not cause a loss of the records. Backup tapes are stored in a fire-proof safe.

2. Hardcopy records produced by the laboratory are a combination of forms, reports, and notebooks. Chain-of-custody and sample information forms along with sample reports are stored in the assistant laboratory manager's office. These are filed in filing cabinets by client name. Each WLSI client has an individual file in which the forms and reports for all samples originating from that client are kept. Within this file, the records are

ORIGINAL
(Red)

separated by type (e.g., all chains-of-custody are filed together, all lab analyses reports are stored together, etc.) and are placed in numerical order of the laboratory sample numbers. At the end of the calendar year, these records are moved from this office to the file room in the basement of the laboratory. The records are kept indefinitely in this area. The filing and maintaining of hardcopy records is the responsibility of the File Clerk. The file clerk is responsible for moving the files from the File Office upstairs to the file storage room located in the basement of the building. The file clerk is also responsible for photocopying the laboratory analysis reports before they are sent to the clients.

3. Laboratory notebooks are kept in the laboratories until they are filled or no longer in use. Once a notebook is "retired" or no longer functioning it is also stored in the file room in the basement of the laboratory. This includes the notebooks assigned to individual analysts, those in which instrument maintenance, calibrations, etc. were recorded, reference material notebooks, sample preservative notebooks, and all other bound materials generated by the laboratory. Laboratory notebooks and all raw-data information are kept indefinitely by the laboratory. It is the responsibility of the Laboratory Manager to file the notebooks in the file room.

ORIGINAL
(Red)

- S. Instrument and Equipment Calibration. WLSI has written procedures for the calibration of all laboratory instruments and equipment. These procedures are can be found in the SOPs for methods using the equipment and frequently in the Instrument Log Books maintained for all equipment. All instruments and other equipment are calibrated on a regular basis in accordance with the written procedures contained in the SOPs or the Instruments logs. In general, the calibration curves consist of a minimum of one blank and three levels of standards. The frequency of the calibrations depends upon the type of instrument and its frequency of use. Acceptable limits of accuracy are also described in the SOP manual.
- T. Instrument and Equipment Maintenance. Appendix F contains a general list of instrument performance checks that can be performed on the listed instruments to ensure proper functioning. Because of the length of the detailed maintenance procedures documentation for specific laboratory instruments is not found in this book. Instead, all maintenance and servicing done on instruments and equipment is recorded in hardbound notebooks. Separate books are kept for each instrument. Detailed in these books are the procedures for the maintenance, frequency required, dates performed, initials of personnel performing the maintenance, and comments made during the procedures. Also included are the dates of servicing by the instrument manufacturers, personnel performing the servicing, records of why it was done (i.e., routine check, instrument instability, etc.), and results of

ORIGINAL
(Red)

the servicing relative to instrument performance. The individual notebooks are located in the laboratory with the instrument to which they pertain. All maintenance books for instruments located within a specific laboratory department are reviewed monthly by the section leaders of that department. Upon review the section leaders initial and date the books. Any problems seen during the review are recorded in the maintenance books by the section leaders along with the corrective actions taken to remedy the problems. The laboratory manager will review the notebooks when problems are found. Should no problems be found, the manager will review, initial, and date the books annually.

ORIGINAL
(Red)

5.0 TIME-LINE SCHEDULE FOR PROPOSED ACTIVITIES
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

SCHEDULE OF WORK FOR ROGERS ELECTRIC SITE CHEVERLEY, MARYLAND

WORK DESCRIPTION	WEEK																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
CONTRACTOR SELECTION AND APPROVAL / SUBMISSION OF WORK PLAN	█																																				
EPA REVIEW AND SUBMISSION OF COMMENTS		█	█																																		
FINAL WORK PLAN				█	█																																
MOBILIZATION OF CONTRACTOR						█	█																														
PHASE I: SAMPLING / ANALYSIS / FIELD SCREENING / SURFACE MATERIALS AND UST							█	█																													
PHASE II: REMOVAL OF SURFACE MATERIALS FOR OFF-SITE DISPOSAL								█	█																												
PHASE III: SUBSURFACE SAMPLING AND ANALYSES										█	█																										
PHASE IV: SUBSURFACE TREATMENT OR EXCAVATION AND REMOVAL											█	█																									
PHASE V: CONFIRMATION SAMPLING AND ANALYSES													█	█																							
PROGRESS REPORT																																					
SUBMISSION OF FINAL REPORT																																					

FINAL REPORT SUBMITTED 2 WEEKS AFTER COMPLETION OF PHASE IV

NOTE: 1 WEEK = 1 WORK WEEK / 7 CALANDER DAYS

ORIGINAL
(Red)

r. e. wright associates, inc.

ORIGINAL
(Red)

APPENDIX A

OHS Hazard Line Information for PCB

CHEMICAL NAME
AROCLOR 1260

FORMULA
NONE

ORIGINAL
(Red)

SYNONYMS
CLOPHEN A60
CHLORODIPHENYL 60% CL
PHENCLOR DP6
PCB
POLYCHLORINATED BIPHENYL
POLYCHLORINATED BIPHENYL (AROCLOR 1260)
OHS01930

PERMISSIBLE EXPOSURE LIMIT
POLYCHLORINATED BIPHENYLS:
1.0 UG/M3 NIOSH RECOMMENDED 10 HOUR TWA
LOWEST FEASIBLE LIMIT NIOSH RECOMMENDED EXPOSURE CRITERIA
HUMAN LIMITED EVIDENCE FOR CARCINOGENICITY (IARC GROUP-2A)
ANIMAL SUFFICIENT EVIDENCE FOR CARCINOGENICITY (IARC GROUP-2A)
ANTICIPATED HUMAN CARCINOGEN (NTP)
POSSIBLE HUMAN CARCINOGEN (EPA - CATEGORY B)
REPRODUCTIVE EFFECTS DATA (RTECS); MUTAGENIC DATA (RTECS)
AQUATIC TOXICITY RATING 2-4/+ (TLM96 <1 - 100 PPM)
TLM96 - AGONUS CATAPHRACTUS >10 PPM, CRANGON CRANGON 3 - >10 PPM
CERCLA HAZARD RATING - TOXICITY 3 - IGNITABILITY 1 - REACTIVITY 0 -
PERSISTENCE 3

TOXICOLOGY: AROCLOR 1260 IS AN EYE, SKIN AND MUCOUS MEMBRANE IRRITANT.
IT IS A HEPATOTOXIN. POISONING BY POLYCHLORINATED BIPHENYLS MAY AFFECT
TISSUES AND ORGANS, ESPECIALLY THOSE RICH IN LIPIDS, DUE TO
ACCUMULATION AS A RESULT OF POOR METABOLISM. EPIDEMIOLOGICAL DATA
PROVIDE EVIDENCE OF A RELATIONSHIP BETWEEN EXPOSURE TO POLYCHLORINATED
BIPHENYLS AND THE DEVELOPMENT OF MALIGNANT MELANOMAS. CERTAIN PCB'S
ARE CARCINOGENIC TO MICE AND RATS AFTER ORAL ADMINISTRATION, PRODUCING
BENIGN AND MALIGNANT LIVER NEOPLASMS. ORAL ADMINISTRATION OF PCB'S
INCREASED THE INCIDENCE OF LIVER NEOPLASMS IN RATS PREVIOUSLY EXPOSED
TO N-NITROSODIETHYLAMINE.

POLYCHLORINATED BIPHENYLS ARE TREATED AS MATERIALS WITH POOR WARNING
PROPERTIES, AS NO QUANTITATIVE DATA ARE AVAILABLE CONCERNING ITS ODOR
AND IRRITATION THRESHOLDS.

THE THRESHOLD LIMIT VALUE OF 0.5 MG/M3 IS RECOMMENDED AT THIS TIME,
HOWEVER, THIS COMPOUND IS UNDER REVIEW.

ORL-RAT LD50: 1315 MG/KG

SKN-RBT LDLO: 2000 MG/KG

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
NONE SPECIFIED

PHYSICAL DESCRIPTION
A PCB CONTAINING 60% CHLORINE

CHEMICAL AND PHYSICAL PROPERTIES

BOILING POINT AT 1 ATM, F: NA
SOLUBILITY IN WATER, G/100 G WATER AT 20C: 0.080 PPM AT 75 F
FLASH POINT, CLOSED CUP, F (OR OPEN CUP IF OC): FLAMMABLE
VAPOR PRESSURE @ 20 C, MMHG: NA
MELTING POINT, F: NA
SPECIFIC GRAVITY: NA

INCOMPATIBILITIES

THERMAL DECOMPOSITION PRODUCTS ARE HAZARDOUS AND/OR TOXIC
STRONG OXIDIZERS

ORIGINAL
(Red)

PERSONAL PROTECTIVE EQUIPMENT

NO NIOSH/OSHA DATA; RECOMMEND

EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

EMPLOYERS SHALL ENSURE THAT CLOTHING CONTAMINATED WITH THIS SUBSTANCE IS PLACED IN CLOSED CONTAINERS FOR STORAGE UNTIL IT CAN BE DISCARDED OR UNTIL THE EMPLOYER PROVIDES FOR THE REMOVAL OF THE CONTAMINANT FROM THE CLOTHING. IF THE CLOTHING IS TO BE LAUNDERED OR OTHERWISE CLEANED TO REMOVE THE CONTAMINANT, THE EMPLOYER SHALL INFORM THE PERSON PERFORMING THE CLEANING OF THE HAZARDOUS PROPERTIES OF THE SUBSTANCE.

--- --- ---
ACGIH "GUIDELINES FOR THE SELECTION OF CHEMICAL PROTECTIVE CLOTHING" INDICATED THE FOLLOWING PROTECTIVE RATINGS FOR MATERIALS COMMONLY USED FOR PROTECTIVE CLOTHING. THESE RATINGS ARE BASED PRIMARILY ON QUANTITATIVE TEST RESULTS AND QUALITATIVE RESISTANCE INFORMATION. (THE RECOMMENDATIONS APPLY TO THE PURE SUBSTANCE ONLY; BREAKTHROUGH-TIME MAY VARY FOR MIXTURES.) (A "+" DESIGNATES A BLEND OF MATERIALS, WHILE A "/" DESIGNATES A COATED OR LAMINATED MATERIAL.)

--- --- ---
POLYCHLORINATED BIPHENYLS (UNDILUTED):

EXCELLENT/GOOD:

SARANEX

GOOD/FAIR:

POLYVINYL ALCOHOL

VITON

TEFLON

POOR/FAIR:

BUTYL RUBBER

POLYETHYLENE

NEOPRENE

POLYVINYL CHLORIDE

POOR:

NATURAL RUBBER

POLYETHYLENE

GOGGLES

NO STANDARD REQUIREMENT, BUT ADVISE EYE PROTECTION TO EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE SPLASH-PROOF GOGGLES WHICH COMPLY WITH 29CFR1910.133(A)(2)-(A)(6) WHERE THERE IS ANY POSSIBILITY OF THIS LIQUID CONTACTING THE EYES.

SHIELDING CHEMICALS FROM THE SKIN

NO STANDARD REQUIREMENT, BUT ADVISE WASHING

EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES CONTAMINATED WITH THIS SUBSTANCE PROMPTLY WASH OR SHOWER WITH SOAP OR MILD DETERGENT AND WATER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHO HANDLE THIS SUBSTANCE WASH THEIR HANDS THOROUGHLY WITH SOAP OR MILD DETERGENT AND WATER BEFORE

EATING, SMOKING, OR USING TOILET FACILITIES.

ROUTINE CHANGING OF WORK CLOTHING
NOT REQUIRED

ORIGINAL
(Red)

CLOTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION
NO STANDARD REQUIREMENT, BUT ADVISE REMOVING
EMPLOYERS SHALL ENSURE THAT NON-IMPERVIOUS CLOTHING WHICH BECOMES
CONTAMINATED WITH THIS SUBSTANCE BE REMOVED IMMEDIATELY AND NOT REWORN
UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

SPECIFIC EMERGENCY PROVISIONS
NO NIOSH/OSHA DATA, ADVISE:

EMPLOYERS SHALL ENSURE THAT EMPLOYEES DO NOT EAT OR SMOKE IN AREAS WHERE
THIS SUBSTANCE IS HANDLED, PROCESSED OR STORED.

EMPLOYERS SHALL ENSURE THAT AREAS IN WHICH EXPOSURE TO THIS SUBSTANCE
MAY OCCUR BE IDENTIFIED BY SIGNS OR OTHER APPROPRIATE MEANS, AND THAT
ACCESS TO THESE AREAS BE LIMITED TO AUTHORIZED PERSONS.

RESPIRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

SPEC ADVISE

- SELF-CONTAINED BREATHING APPARATUS
WITH A FULL FACE-PIECE
- SUPPLIED-AIR RESPIRATOR
WITH A FULL FACE-PIECE, HELMET, OR HOOD

CAPE

- GAS MASK
WITH A PESTICIDE CANISTER
(CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
- SELF-CONTAINED BREATHING APPARATUS

REFIGHTING

- SELF-CONTAINED BREATHING APPARATUS
WITH A FULL FACE-PIECE
OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

ROUTE OF ENTRY INTO BODY

INHALATION

INGESTION

SKIN OR EYE CONTACT

Symptoms

SKIN IRRITATION

EYE IRRITATION

MUCOUS MEMBRANE IRRITATION

HEADACHE

NAUSEA

VOMITING

ORIGINAL
(Red)

ABDOMINAL CRAMPS
EDEMA
ANOREXIA
FATIGUE
JAUNDICE
CHLORACNE
EXTRA PIGMENTATION
EDEMA OF THE EYELIDS
CONJUNCTIVITIS
BLURRED VISION
DIARRHEA
ANALGESIA
CENTRAL NERVOUS SYSTEM DEPRESSION
PERIPHERAL NEUROPATHY
LIVER TUMORS
COMA
LUNG INJURY
STOMACH HEMORRHAGE
PANCREAS INJURY
KIDNEY INJURY
NEOPLASM

FILE 1 AID PROCEDURES FOLLOWING EXPOSURE

IF THIS CHEMICAL GETS INTO THE EYES, WASH THE EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL GETS ON THE SKIN, REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). FOLLOW WITH APPLICATION OF CASTOR OIL OR 10% ETHYL ALCOHOL. (ARENA, POISONING, 4TH ED.). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL HAS BEEN INHALED, REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

POLYCHLORINATED BIPHENYL/POLYCHLORINATED NAPHTHALENE:

EMERGENCY TREATMENT - REMOVE FROM EXPOSURE.

FURTHER TREATMENT - TREAT LIVER DAMAGE.

(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

LIVER DAMAGE - DISCONTINUE ALL DRUGS AND CHEMICALS. MAINTAIN COMPLETE BED REST. AVOID ANESTHESIA OR SURGICAL PROCEDURES. AVOID DEHYDRATION OR OVERHYDRATION. IF VOMITING IS SEVERE AND ORAL FLUIDS ARE NOT RETAINED, REPLACE VOMITUS WITH AN EQUAL QUANTITY OF 5-10% DEXTROSE IN 0.3-0.5 N SALINE. ADMINISTER MAINTENANCE FLUIDS AND ELECTROLYTES AS NECESSARY, DEPENDING ON RENAL FUNCTION. RESUME ORAL FEEDINGS AS SOON AS THE PATIENT CAN TOLERATE THEM. CONTROL THE AMOUNT OF PROTEIN IN THE DIET IN ORDER TO CORRECT THE SERUM PROTEIN LEVEL. GIVE VITAMIN K, PHYTONADIONE, 2.5 MG DAILY. IF ANEMIA IS SEVERE, CONSIDER A BLOOD TRANSFUSION. PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL. (DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

KIDNEYS
LIVER
SKIN
CENTRAL NERVOUS SYSTEM
HEART

ORIGINAL
(Red)

STATUS OF REGULATORY ENFORCEMENT

OSHA STANDARD 1910.1200 HAZARD COMMUNICATION

REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARDOUS COMMUNICATION PROGRAM, LABELS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

C A STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AID

OSHA STANDARD 29CFR1910.133 EYE AND FACE PROTECTION

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT

SECTION 8(C) OF THE TOXIC SUBSTANCES CONTROL ACT (TSCA) REQUIRES MANUFACTURERS, PROCESSORS, AND DISTRIBUTORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY THE SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQUIRE REPORTING OF SUCH RECORDS.

SUBSTANCE ESTABLISHED AS CONFIRMED OR SUSPECTED CARCINOGEN (POTENTIAL CARCINOGEN) BY THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC)

SUBSTANCE LISTED AS "KNOWN HUMAN CARCINOGEN" OR "ANTICIPATED HUMAN CARCINOGEN" BY THE NATIONAL TOXICOLOGY PROGRAM (NTP) ANNUAL REPORT ON CARCINOGENS.

40CFR401.15 GENERAL PROVISIONS

SUBCHAPTER N - EFFLUENT GUIDELINES AND STANDARDS
THIS SUBSTANCE LISTED AS A TOXIC POLLUTANT DESIGNATED PURSUANT TO SECTION 307(A)(1) OF THE CLEAN WATER ACT

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCES

SUBSTANCE DESIGNATED AS A HAZARDOUS SUBSTANCE UNDER SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THESE SUBSTANCES.

40CFR122 EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

APPENDIX D - NPDES PERMIT APPLICATION TESTING REQUIREMENTS

TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

REGULATION IN DEVELOPMENT/PROGRESS COMPREHENSIVE ENVIRONMENTAL
RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) SECTION 101

ORIGINAL
(Red)

40CFR761 POLYCHLORINATED BIPHENYLS (PCBS) MANUFACTURING, PROCESSING,
DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS.

ESTABLISHES PROHIBITIONS OF, AND REQUIREMENTS FOR, THE MANUFACTURE,
PROCESSING, DISTRIBUTION IN COMMERCE, USE, DISPOSAL, STORAGE, AND
MARKING OF PCBS AND PCB ITEMS.

54FR52716 12/21/89 (AMENDMENT)

21CFR109.15 USE OF POLYCHLORINATED BIPHENYLS (PCB'S) IN
ESTABLISHMENTS MANUFACTURING FOOD-PACKAGING MATERIALS

42FR52819 09/30/77

21CFR109.30 TOLERANCES FOR POLYCHLORINATED BIPHENYL'S (PCB'S)

38FR22794 08/24/73 (STAY OF 109.30(A)(9))

42FR52819 09/30/77

44FR38340 06/29/79 (REVISION OF 109.30(A)(7))

44FR57389 10/05/79 (STAY OF 109.30(A)(7))

46FR8459 01/27/81

48FR10811 03/15/83

1. FOOD AND DRUG ADMINISTRATION IS CONFIRMING THE EFFECTIVE
DATE FOR COMPLIANCE WITH THE FINA RULE CONCERNING A TOLERANCE
FOR PCB'S IN PAPER FOOD-PACKAGING MATERIAL (21CFR109). THE
AGENCY IS ALSO CORRECTING THE PREAMBLE TO THE RULE.

48FR45544 10/06/83

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO
KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED:
SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE
WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCE LISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY
RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF CALIFORNIA HAZARDOUS SUBSTANCES
INFORMATION AND TRAINING ACT, CALIFORNIA LABOR CODE, DIVISION 5,
CHAPTER 2.5

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE
TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

POLYCHLORINATED BIPHENYLS ARE BEING TESTED FOR CLINICAL TOXICOLOGY/
EPIDEMIOLOGY AND REPRODUCTIVE/DEVELOPMENTAL TOXICITY BY THE NATIONAL
INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS),

THIS SUBSTANCE LISTED IN CALIFORNIA AS A REPRODUCTIVE TOXIN UNDER
PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF
1986. REGULATION REQUIRES EMPLOYERS BEGINNING JANUARY 1, 1992, TO WARN
WORKERS, CONSUMERS AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS
CHEMICAL AT A LEVEL DEEMED BY THE STATE TO POSE A SIGNIFICANT RISK.
WARNING METHODS MAY INCLUDE PRODUCT OR SHELF LABELS, SIGNS OR MEDIA
ANNOUNCEMENT. BEGINNING SEPTEMBER 1, 1992, THIS CHEMICAL CANNOT BE
DISCHARGED OR RELEASED INTO ANY KNOWN SOURCE OF DRINKING WATER.

UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT

ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE
POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST
SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR
AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY
PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR
RESOURCES BOARD (ARB).
EFFECTIVE DATE: 1/1/88
AB 2588, CHAPTER 1252

ORIGINAL
(Red)

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65
THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. REGULATION
REQUIRES EMPLOYERS BEGINNING JANUARY 1, 1989, TO WARN WORKERS, CONSUMERS
AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS CHEMICAL AT A LEVEL DEEMED
BY THE STATE TO POSE A SIGNIFICANT RISK. WARNING METHODS MAY INCLUDE
PRODUCT OR SHELF LABELS, SIGNS OR MEDIA ANNOUNCEMENTS. BEGINNING
SEPTEMBER 1, 1989, THIS CHEMICAL CANNOT BE DISCHARGED OR RELEASED INTO
ANY KNOWN SOURCE OF DRINKING WATER.

CANADA: THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE
HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE
SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL
SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION.
EMPLOYERS MUST PROVIDE LABELS, MSDS'S AND WORKER EDUCATION PROGRAMS IN
T. WORKPLACE.

CERCLA SECTION 104(I) PRIORITY LIST OF HAZARDOUS SUBSTANCES FOUND AT
SUPERFUND SITES.

52FR12866	4/17/87
53FR41280	10/20/88
54FR43615	10/26/89
55FR42067	10/17/90

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) - TABLE 4.2
DANGEROUS GOODS LIST: THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS,
LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORTATION.

THIS SUBSTANCE TESTED FOR SYSTEMIC/ORGAN TOXICITY BY THE
ENVIRONMENTAL PROTECTION AGENCY (EPA)

40 CFR 370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING:
COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING:
COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR117 DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS
SUBSTANCES
QUANTITIES, AS LISTED IN TABLE 302.4 40CFR302, THAT MAY BE HARMFUL AND
WHICH THE DISCHARGE IS A VIOLATION OF THE CLEAN WATER ACT SECTION
11(B) (3) AND REQUIRES NOTICE AS SET FORTH IN SECTIONS 103(A) AND 103(B)
OF CERCLA.

29CFR1910.1450 SUBJECT TO OSHA STANDARD REGULATING OCCUPATIONAL
EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
29CFR3300 1/31/90

40CFR302 CERCLA SECTION 103 DESIGNATION, REPORTABLE QUANTITIES AND
NOTIFICATION
REPORTABLE QUANTITY (RQ) : 1 LB. (0.454 KG)

ORIGINAL
(Red)

MEDICAL SURVEILLANCE REQUIRED

NO INFORMATION AVAILABLE FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES
FOR CHEMICAL HAZARDS"; ADVISE:

EKG RECOMMENDED IF EMPLOYEE TO WEAR FULL-FACE RESPIRATOR

GENERAL MEDICAL HISTORY

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES
CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES
MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES
TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR
30 YEARS.

PHYSICIAN PRE-PLACEMENT AND ANNUAL EXAMS

MEDICAL WARNING FOR REFUSAL OF MEDICAL EXAMINATION

BLOOD CHEMISTRY

TOTAL BILIRUBIN

RENAL AND LIVER FUNCTIONS

29CFR1910.20 OSHA STANDARD

UBPART C - GENERAL SAFETY AND HEALTH PROVISIONS

PROVIDES FOR EMPLOYEE, DESIGNATED REPRESENTATIVE, AND OSHA
ACCESS TO EMPLOYER-MAINTAINED EXPOSURE AND MEDICAL RECORDS
RELEVANT TO EMPLOYEES EXPOSED TO TOXIC SUBSTANCES AND HARMFUL
PHYSICAL AGENTS.

53FR38140 9/29/88 (AMENDED)

CERTIFICATIONS

NO FEDERAL AGENCY REQUIREMENT, BUT DUE TO HAZARDOUS NATURE OF
SUBSTANCE, ADVISE FOLLOWING:

HEALTH STATUS CLASSIFICATION

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

DEPARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES
MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND
MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO
EMPLOYEE HEALTH FOR 30 YEARS. CONTACT: CHARLES L. ELKINS, OFFICE OF
TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED
BY EMPLOYEE

SPECIAL DIAGNOSTIC TESTS

BASELINE LIVER AND RENAL FUNCTIONS

BLOOD CHEMISTRY

ORIGINAL
(Red)

EAKS AND SPILL PROCEDURES

REPORTABLE QUANTITY (RQ): 1 LB. (0.454 KG)

A REPORTABLE QUANTITY OF ONE POUND APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8820; IN THE WASHINGTON, D.C. METROPOLITAN AREA (202) 426-2675. 40CFR302

DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS MATERIALS TABLE

POLYCHLORINATED BIPHENYLS
ORM-E
UN 2315

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

NONE

INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

CLASS 9-MICELLANEOUS DANGEROUS SUBSTANCES

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR
DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

N'

FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF
HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:

- * USE SUITABLE AGENT FOR TYPE OF SURROUNDING FIRE TO EXTINGUISH FIRE
(MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICULTY)

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:

- * DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS
- * CONTAIN FLOW WITH DIKES AS NECESSARY

PERSONNEL PROTECTION:

- * KEEP UPWIND
- * WEAR BOOTS, PROTECTIVE GLOVES AND GAS TIGHT GOGGLES
- * AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL
- * WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND

WATER

LAND SPILL:

- * DIG A HOLDING AREA SUCH AS A PIT, POND, OR LAGOON TO CONTAIN LIQUID OR SOLID MATERIAL
- * DIKE FLOW OF SPILLED MATERIAL USING SOIL OR SANDBAGS OR FOAMED BARRIERS SUCH AS POLYURETHANE OR CONCRETE
- * USE CEMENT POWDER OR FLY ASH TO ABSORB LIQUID MASS

ORIGINAL
(Red)

WATER SPILL:

- * USE NATURAL DEEP WATER POCKETS, EXCAVATED LAGOONS, OR SAND BAG BARRIERS TO TRAP MATERIAL AT BOTTOM
- * IF DISSOLVED, APPLY ACTIVATED CARBON AT 10 TIMES SPILLED AMOUNT IN THE REGION OF 10 PPM OR GREATER CONCENTRATION
- * USE SUCTION HOSES TO REMOVE TRAPPED MATERIAL
- * REMOVE IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES WITH MECHANICAL DREDGES OR LIFTS

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO WATER OR ONTO OR INTO LAND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

THIS SUBSTANCE LISTED IN CALIFORNIA AS A REPRODUCTIVE TOXIN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO THE WATER OR ONTO OR INTO LAND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

STE

OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

* *****

THIS SUBSTANCE DOES NOT MEET THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40CFR260)

40CFR761 SUBPART D SUBJECT TO STORAGE AND DISPOSAL REGULATIONS FOR POLYCHLOROBIPHENYLS (PCBS) AS REGULATED BY EPA UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 6(E)(1).
54FR52716 12/21/89 (AMENDMENT)

AS NUMBER
11096-82-5

REGISTRY TOXIC CHEMICALS NUMBER
TQ1362000

NOTES

EPA HAS ISSUED A FINAL RULE UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA) THAT ESTABLISHES A "CRADLE-TO-GRAVE" TRACKING SYSTEM FOR THE TRANSPORT, STORAGE AND DISPOSAL OF PCBS EFFECTIVE FEBRUARY 5, 1990.

(SEE EHN ITEM 034). 54FR52716 12/21/89

SPECIAL INFORMATION

12% PENTA-, 35% HEXA-, 41% HEPTA-, 8% OCTA-, AND 1% NONACHLOROBIPHENYLS

ORIGINAL
(Red)

ORIGINAL
(Red)

APPENDIX B
NIOSH Method 5503

FORMULA: mixture: $C_{12}H_{10-x}Cl_x$
 [where $x = 1$ to 10]
 M.W.: ca. 258 (42% Cl ; $C_{12}H_7Cl_2$);
 ca. 326 (54% Cl ; $C_{12}H_5Cl_5$)

POLYCHLOROBIPHENYLS

METHOD: 5503

ISSUED: 2/15/84

REVISION #1: 8/15/87

OSHA: 1 mg/m³ (42% Cl);
 0.5 mg/m³ (54% Cl)
 NIOSH: 0.001 mg/m³ [1,2]
 ACGIH: 1 mg/m³ (42% Cl); STEL 2 mg/m³
 0.5 mg/m³ (54% Cl); STEL 1 mg/m³
 (skin)

PROPERTIES: 42% Cl: BP 325 to 366 °C; MP -19 °C;
 d 1.38 g/mL @ 25 °C;
 VP 0.01 Pa (8×10^{-5} mm Hg;
 1 mg/m³) @ 20 °C [3]
 54% Cl: BP 365 to 390 °C; MP 10 °C;
 d 1.54 g/mL @ 25 °C;
 VP 0.0004 Pa (3×10^{-6} mm Hg;
 0.05 mg/m³) @ 20 °C [3,4]

SYNONYMS: PCB; CAS #1336-36-3; 1,1'-biphenyl chloro (CAS #27323-18-8); chlorodiphenyl, 42% Cl (Aroclor 1242; CAS #53469-21-9), and 54% Cl (Aroclor 1254; CAS #11097-69-1)

SAMPLING	MEASUREMENT
SAMPLER: FILTER + SOLID SORBENT (13-mm glass fiber + Florisil, 100 mg/50 mg)	! TECHNIQUE: GAS CHROMATOGRAPHY, ECD (⁶³ Ni)
FLOW RATE: 0.05 to 0.2 L/min or less	! ANALYTE: polychlorobiphenyls
VOL-MIN: 1 L @ 0.5 mg/m ³ -MAX: 50 L	! DESORPTION: filter + front section, 5 mL hexane; back section, 2 mL hexane
SHIPMENT: transfer filters to glass vials after sampling	! INJECTION VOLUME: 4 µL with 1-µL backflush
SAMPLE STABILITY: unknown for filters; 2 months for Florisil tubes [5]	! TEMPERATURE-INJECTION: 250 - 300 °C -DETECTOR: 300 - 325 °C -COLUMN: 180 °C
BLANKS: 10% of samples	! CARRIER GAS: N ₂ , 40 mL/min
	! COLUMN: glass, 1.8 m x 2 mm ID, 1.5% OV-17/1.95% QF-1 on 80/100 mesh Chromosorb WHP
	! CALIBRATION: standard PCB mixture in hexane
	! RANGE: 0.4 to 4 µg per sample [6]
	! ESTIMATED LOD: 0.03 µg per sample [6]
	! PRECISION (s _r): 0.044 [5]
ACCURACY	
RANGE STUDIED: not studied	
BIAS: none identified	
OVERALL PRECISION (s _r): not evaluated	
APPLICABILITY: The working range is 0.01 to 10 mg/m ³ for a 40-L air sample [5]. With modifications, surface wipe samples may be analyzed [7,8].	
INTERFERENCES: Chlorinated pesticides, such as DDT and DDE, may interfere with quantitation of PCB. Sulfur-containing compounds in petroleum products also interfere [9].	
OTHER METHODS: This method revises Methods S120 [10], 5503 (dated 2/15/84), and P&CAM 244 [5]. Methods S121 [11] and P&CAM 253 [12] for PCB have not been revised.	

REAGENTS:

1. Hexane, pesticide quality.
2. Florisil, 30/48 mesh sieved from 30/60 mesh. After sieving, dry at 105 °C for 45 min. Mix the cooled Florisil with 3% (w/w) distilled water.
3. Nitrogen, purified.
4. Stock standard solution of the PCB in methanol or isooctane (commercially available).*

*See SPECIAL PRECAUTIONS.

EQUIPMENT:

1. Sampler: 13-mm glass fiber filter without binders in a Swinnex cassette (Cat. No. SX 0001300, Millipore Corp.) followed by a glass tube, 7 cm long, 6 mm OD, 4 mm ID containing two sections of 30/48 mesh deactivated Florisil. The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; urethane foam between sections and behind the backup section. Join the cassette and Florisil tube with PVC tubing, 3/8" L x 9/32" OD x 5/32" ID, on the outlet of the cassette and with another piece of PVC tubing, 3/4" L x 5/16" OD x 3/16" ID, complete the union.
2. Personal sampling pump, 0.05 to 0.2 L/min, with flexible connecting tubing.
3. Tweezers.
4. Vials, glass, 4- and 7-mL, with aluminum or PTFE-lined caps.
5. Gas chromatograph, electron capture detection (⁶³Ni), integrator and column (page 5503-1).
6. Volumetric flasks, 10-mL and other convenient sizes for preparing standards.
7. Syringe, 10-μL.

SPECIAL PRECAUTIONS: Avoid prolonged or repeated contact of skin with PCB and prolonged or repeated breathing of the vapor [1,2,13].

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Break the ends of the Florisil tube immediately before sampling. Connect Florisil tube to Swinnex cassette and attach sampler to personal sampling pump with flexible tubing.
3. Sample at an accurately known flow rate between 0.05 and 0.2 L/min for a total sample size of 1 to 50 L.

NOTE: At low PCB concentrations, the sampler was found to be efficient when operated at flow rates up to 1 L/min, for 24 hours [8]. Under these conditions, the limit of detection was 0.02 μg/m³.

4. Transfer the glass fiber filters to 7-mL vials. Cap the Florisil tubes with plastic (not rubber) caps and pack securely for shipment.

SAMPLE PREPARATION:

5. Place the glass wool and 100-mL Florisil bed in the same 7-mL vial in which the filter was stored. Add 5.0 mL hexane.

NOTE: For surface wipe samples, extract each gauze pad with 25 mL hexane [7].

6. In a 4 mL vial, place the 50-mg Florisil bed including the two urethane plugs. Add 2.0 mL hexane.
7. Allow to stand 20 min with occasional agitation.

CALIBRATION AND QUALITY CONTROL:

8. Calibrate daily with at least five working standards over the range 10 to 500 ng PCB/mL.
 - a. Add known amounts of stock standard solution to hexane in 10-mL volumetric flasks and dilute to the mark.
 - b. Analyze together with samples and blanks (steps 11 and 12).
 - c. Prepare calibration graph (sum of areas of selected peaks vs. ng PCB/mL).
9. Determine desorption efficiency (DE) at least once for each lot of glass fiber filters and Florisil used for sampling in the calibration range (step 8). Prepare three tubes at each of five levels plus three media blanks.
 - a. Remove and discard back sorbent section of a media blank Florisil tube.
 - b. Inject known amounts of stock standard solution directly onto front sorbent section and onto a media blank filter with a microliter syringe.
 - c. Cap the tube. Allow to stand overnight.
 - d. Desorb (steps 5 through 7) and analyze together with working standards (steps 11 and 12).
 - e. Prepare a graph of DE vs. μg PCB recovered.
10. Analyze three quality control blind spikes and three analyst spikes to ensure that the calibration graph and DE graph are in control.

MEASUREMENT:

11. Set gas chromatograph according to manufacturer's recommendations and to conditions given on page 5503-1. Inject sample aliquot manually using solvent flush technique or with autosampler.

NOTE 1: Where individual identification of PCB is needed, a procedure using a capillary column may be used [14].

NOTE 2: If peak area is above the linear range of the working standards, dilute with hexane, reanalyze and apply the appropriate dilution factor in calculations.

12. Sum the areas for five or more selected peaks.

CALCULATIONS:

13. Determine the mass, ng (corrected for DE) of PCB found on the glass fiber filter (W) and in the Florisil front (W_f) and back (W_b) sorbent sections, and in the average media blank filter (B) and front (B_f) and back (B_b) sorbent sections.

NOTE: If $W_b > W_f/10$, report breakthrough and possible sample loss.

14. Calculate concentration, C , of PCB in the air volume sampled, V (L):

$$C = \frac{(W + W_f + W_b - B - B_f - B_b) \cdot 10^{-9}}{V}, \text{ mg/m}^3.$$

EVALUATION OF METHOD:

This method uses 13-mm glass fiber filters which have not been evaluated for collecting PCB. In Method S120, however, Aroclor 1242 was completely recovered from 37-mm glass fiber filters using 15 mL isooctane [12,15,16]. With 5 mL of hexane, Aroclor 1016 was also completely recovered from 100-mg Florisil beds after one-day storage [5]. Thus, with no adsorption effect likely on glass fiber filters for PCB, 5 mL hexane should be adequate to completely extract PCB from combined filters and front sorbent sections. Sample stability on glass fiber filters has not been investigated. Breakthrough volume was >48 L for the Florisil tube at 75% RH in an atmosphere containing 10 mg/m³ Aroclor 1016 [5].

REFERENCES:

- [1] Criteria for a Recommended Standard...Occupational Exposure to Polychlorinated Biphenyls, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-225 (1977).

- [2] Current Intelligence Bulletin 7, Polychlorinated Biphenyls (PCBs), U.S. Department of Health and Human Services, Publ. (NIOSH) 78-127 (1975).
- [3] Hutzinger, O. S. Safe and V. Zitko. The Chemistry of PCBs, CRC Press, Inc., Cleveland, OH (1974).
- [4] Foreman, W. T., and T. F. Bidleman, "Vapor Pressure Estimates of Individual Polychlorinated Biphenyls and Commercial Fluids Using Gas Chromatographic Retention Data," J. Chromatogr. 330: 203-216 (1985).
- [5] NIOSH Manual of Analytical Methods, 2nd. ed., V. 1, P&CAM 244, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-157-A (1977).
- [6] User check, Southern Research Institute, NIOSH Sequence #4121-U (unpublished, January 25, 1984).
- [7] Kominsky, J. Applied Ind. Hyg. 1 (4): R-6 (1986).
- [8] NIOSH Health Hazard Evaluation Report, HETA 85-289-1738 (unpublished, 1986).
- [9] Hofstadter, R. A., C. A. Bache, and D. J. Lisk. Bull. Environ. Contam. Toxicol., 11:136 (1974).
- [10] NIOSH Manual of Analytical Methods, 2nd ed., V. 4, S120, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 78-175 (1978).
- [11] Ibid, V. 2, S121, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-157-B (1977).
- [12] Ibid, Vol. 1, P&CAM 253.
- [13] Occupational Diseases, A Guide to Their Recognition, revised ed., 255-256, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-181 (1978).
- [14] Dunker, J. C. and M. T. J. Hillebrand. Characterization of PCB Components in Clophen Formulations by Capillary GC-MS and GC-ECD Techniques, Environ. Sci. Technol., 17 (8), 449-456 (1983).
- [15] Backup Data Report for S120, prepared under NIOSH Contract 210-76-0123, available as "Ten NIOSH Analytical Methods, Set 2," Order No. Pb 271-464 from NTIS, Springfield, VA 22161.
- [16] NIOSH Research Report-Development and Validation of Methods for Sampling and Analysis of Workplace Toxic Substances, U.S. Department of Health and Human Services, Publ. (NIOSH) 80-133 (1980).

METHOD REVISED BY: James E. Arnold, NIOSH/DPSE; S120 originally validated under NIOSH Contract 210-76-0123.

Table 1. Composition of some Aroclors [3].

Major Components	Aroclor 1016	Aroclor 1242	Aroclor 1254
Biphenyl	0.1%	<0.1%	<0.1%
Monochlorobiphenyls	1	1	<0.1
Dichlorobiphenyls	20	16	0.5
Trichlorobiphenyls	57	49	1
Tetrachlorobiphenyls	21	25	21
Pentachlorobiphenyls	1	8	48
Hexachlorobiphenyls	<0.1	1	23
Heptachlorobiphenyls	none detected	<0.1	6
Octachlorobiphenyls	none detected	none detected	none detected

Table 1. Composition of some Aroclors [3].

<u>Major Components</u>	<u>Aroclor 1016</u>	<u>Aroclor 1242</u>	<u>Aroclor 1254</u>
Biphenyl	<0.1%	<0.1%	<0.1%
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Trichlorobiphenyls	57	49	1
Tetrachlorobiphenyls	21	25	21
Pentachlorobiphenyls	1	8	48
Hexachlorobiphenyls	<0.1	1	23
Heptachlorobiphenyls	none detected	<0.1	6
Octachlorobiphenyls	none detected	none detected	none detected

ORIGINAL
(Red)

ORIGINAL
(Red)

APPENDIX C
Levels of Protection

APPENDIX C

LEVELS OF PROTECTION

ORIGINAL
(Red)

When remediation activities are conducted where atmospheric contamination is known or suspected to exist, personnel protective equipment must be worn. Personnel protective equipment is designed to prevent/reduce skin and eye contact as well as inhalation or ingestion of the chemical substance.

Personnel equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories:

1. Level A protection should be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed.

- a. Personal Protective Equipment

- Positive-pressure (pressure demand), self-contained breathing apparatus (MSHA/NIOSH approved).
- Fully encapsulating chemical-resistant suit.
- Gloves, inner, chemical resistant.
- Gloves, outer, chemical resistant.
- Boots, chemical resistant, steel toe and shank (depending on suit boot construction, worn over or under suit boot).
- Underwear, cotton, long-john type.*
- Hard hat (under suit).
- Coveralls (under suit).
- Two-way radio communications (intrinsically safe).

*Optional

2. Level B protection should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection is required. Level B protection is the minimum level recommended on initial site entries until the hazards have been further identified and defined by monitoring, sampling, and other reliable methods of analysis, and personnel equipment corresponding with those findings is utilized.

a. Personal Protective Equipment

- Positive-pressure (pressure-demand) self-contained breathing apparatus (MSHA/MIOSH approved).
- Chemical-resistant clothing (overalls and long-sleeved jacket, coveralls, hooded two-piece chemical splash suit, disposable chemical-resistant coveralls).
- Coveralls (under splash suit).*
- Gloves, outer, chemical resistant.
- Gloves, inner, chemical resistant.
- Boots, outer, chemical resistant, steel toe and shank.
- Boots, outer, chemical resistant.*
- Two-way radio communications (intrinsically safe).
- Hard hat.

*Optional

3. Level C protection should be selected when the type of airborne substance is known, concentration measured, criteria for using air-purifying respirators met, and skin and eye exposure is unlikely. Periodic monitoring

of the air must be performed.

a. Personal Protective Equipment

- Full-face, air-purifying respirator (MSHA/NIOSH approved).
- Chemical-resistant clothing (one-piece coverall, hooded two-piece chemical splash suit, chemical-resistant hood and apron, or disposable chemical-resistant coveralls).
- Gloves, outer, chemical resistant.
- Gloves, inner, chemical resistant.*
- Boots, steel toe and shank, chemical resistant.
- Boots, outer, chemical resistant.*
- Cloth coveralls (inside chemical protective clothing).*
- Two-way radio communications (intrinsically safe).
- Hard hat.
- Escape mask.*

*Optional

4. Level D will be considered the minimum protection level for work conducted in the exclusion zone.

a. Personal Protective Equipment.

- Disposable coverall suit which completely covers worker's uniform.
- Hard hats.
- Steel-toe boots.

ORIGINAL
(Red)

--Monogoggles rather than safety glasses.

Refer to the United States Environmental Protection Agency,
Office of Emergency and Remedial Response, Environmental
Response Division, Interim Standard Operating Safety Procedures
for full details.

ORIGINAL
(Red)

APPENDIX D
Emergency Information

APPENDIX D

ORIGINAL
(Red)

Emergency Information

Pertinent emergency telephone numbers are listed below. This information must be provided to all personnel prior to site entry and be conspicuously displayed at the project command post.

On-site emergency telephone numbers:

<u>Facility/Title</u>	<u>Telephone Number</u>
Fire	911
Police	911
Hospital, Prince George	301/618-2000
Ambulance,	911
National Response Center	*800-424-8802
Poison Center	717-531-6111
CHEM TREC	800-424-9300

*Required call for any reportable quantity of a hazardous waste (refer to "1990 Emergency Response Guidebook" USDOT Publication 5800.5).

Client Representative:

Chester White 202/714-4723

REWAI Project Coordinator

Mike Haufler 301/876-0280

HOSPITAL ROUTE

Prince George Hospital is one mile north of the site, Figure 1. From the site take a right on Columbia Park Road. Go

ORIGINAL
(Red)

left (east) on John Hanson Highway, Route 50, for approximately one mile. Exit on Landover Road, Route 202 east. After 3/4 of a mile look for signs to the hospital.

ORIGINAL
(Red)

APPENDIX E
Site Safety Assessment Form

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(Red)

APPENDIX E

SITE SAFETY ASSESSMENT FORM
RODGERS ELECTRIC SITE

Job Number 91130

Prepared By _____ Date _____

Location: Cheverly, Maryland Status _____

Facility Description _____

Site Phone Number _____

Existing Information: Detailed _____ Preliminary _____ None _____

Description of Problem _____

Type of Work Required _____

Miss Utility Notified? 1-800-257-7777 _____ yes _____ no

Municipality: _____ One Call Serial No. _____

Local Emergency: Authorities Notified _____ yes _____ no
Emergency Phone No. _____

Utilities Survey	Present	Contacted	Utility Name	Phone Number
------------------	---------	-----------	--------------	--------------

	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>		
Gas	_____	_____	_____	_____	_____	_____
Fuel	_____	_____	_____	_____	_____	_____
Water	_____	_____	_____	_____	_____	_____
Electrical	_____	_____	_____	_____	_____	_____
Telephone	_____	_____	_____	_____	_____	_____
Video	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____

*Describe Known Site Hazards (include sketch plan) _____

*Suspected Hazards _____

*Plan to Control Hazards _____

*If work area contains hazardous materials, complete and go to page 2.

Hazardous Material Form: Gas _____ Liquid _____ Solid _____

Containment: Groundwater _____ Free Product _____ Soils _____
Lagoon _____ Seep _____ Drum _____ Other _____

Material Characteristics: Ignitable _____ Reactive _____
Volatile _____ Toxic _____ Radioactive _____ Corrosive _____

Hazardous Materials (Add Hazardous Substance Data Sheets for each compound):

ORIGINAL
(Red)

<u>Compound</u>	<u>Concentration</u>	<u>Warning Properties</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Personnel Protection Required: A_____ B_____ C_____ D_____

Modifications or Specialized Equipment _____

Detection Equipment _____
Action Level _____
Action Planned _____

Decontamination Procedures:

Personnel _____
Protective Equipment _____
Support Equipment _____
Sampling Equipment _____
Other (describe) _____

<u>Assigned On-site Personnel</u>	<u>Task</u>	<u>Date:Trained</u>	<u>Physical</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ORIGINAL
(Red)

Plan Approved By _____ Date _____

Safety Officer _____ Date _____

ORIGINAL
(Red)

APPENDIX F

Clean Harbor HASP for Tank Removal and Confined Space Entry

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SITE SPECIFIC HEALTH AND SAFETY PLAN
FLAMMABLE AND COMBUSTIBLE LIQUID
UNDERGROUND STORAGE TANK REMOVAL

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13.0 Site Specific Information

This plan addresses those activities and operations proposed for the underground tank removal project to be conducted by Clean Harbors' of Kingston Inc.. These activities are proposed to include the cleaning and removal of underground storage tanks and backfilling to grade the work area.

This Site Specific Information has been developed from the latest available information on the site. Revisions and alterations to this plan may become necessary as further information, (i.e., environmental sampling results, changes in site conditions, changes in scope of work, etc.), is developed or becomes available. Any proposed changes to this plan must be approved by Clean Harbors' manager of Occupational Health and Safety, prior to their on-site implementation.

All on-site personnel will be required to review and strictly comply with this Health and Safety Plan. It will be the responsibility of the Project Manager, in cooperation with the Site Health and safety Representative, to ensure this plan is implemented and enforced.

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Site Plan For Underground Storage Tank Removal

13.1 Site Information

Site Name: _____
Site Location: _____
Client Contact: _____
Title: _____
Phone #: _____
Plan Date: _____

Type Of Waste/Product To Be
Handled: _____
_____ Combustible
_____ Flammable
_____ Acid
_____ Caustic

13.2 Site History

13.2.1 Former Nature Of Site

_____ Industrial _____ Commercial _____ Residential
_____ Rural _____ Other _____

13.2.2 Former Use Of Site

_____ Manufacturing _____ Landfill _____ TSDF
_____ Residence _____ Gasoline Distributorship
_____ Maintenance Facility _____ Other _____

13.2.3 Reason For Site Mobilization/Activity

_____ Public Complaints _____ Agency Authorized Clean Up
_____ Client Request _____ Previous Site Research/Investigation
_____ Emergency Response _____ Other _____

13.2.4 Work Ordered By

_____ Client _____ Government Agency
_____ Other _____

13.2.5 Nature Of Problem

_____ Leaking UST _____ Buried Drums _____ Spill
_____ Truck Roll Over _____ Uncontrolled Problem
_____ Other _____

13.2.6 Detailed Site History

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13.3 Site Description

13.3.1 General Site Topography

_____ Hilly _____ Flat _____ Marshland
_____ Other _____

13.3.2 Affected Areas

_____ Urban _____ Rural _____ Residential
_____ Industrial _____ Other _____

13.3.3 Bodies Of Water Neighboring Site

_____ Stream _____ Pond _____ Bay
_____ River _____ Lake _____ Ocean
_____ Other _____

13.3.4 Approximate Size Of Site

Specify Approximate Dimensions _____

13.3.5 Unusual Site Features

Specify: (Process/Utility lines and proximity to site operations;
Potential, overhead obstructions; building locations, etc.)

13.3.6 Properties Abutting Site And Current Use (Specify approximate distance to work area)

North _____ South _____
East _____ West _____

13.4 Key Personnel

13.4.1 Nearest Hospital

Name: _____
Address: _____
Phone #: _____
Directions To Hospital From Site: _____

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13.4.2 Clean Harbors Operations Contact

Project Manager: _____ Branch/Division: _____
Phone #: Office: _____ Pager: _____
Branch Manager: _____ Branch/Division: _____
Phone #: Office: _____ Pager: _____
Regional Health And Safety Rep.: _____
Pager: _____

Corporate Health And Safety: Contact To Report Emergency
Robert Spielvogel, Pager #: 1-800-366-2337 (11157)
Rich Analoro, Pager #: 1-800-366-2337 (11161)

13.4.3 Regulatory Agency Contacts (To Be Filled Out If They Come Onto The Job Site)

Local:

State:

Name _____
Title _____
Agency _____
Phone # _____

Name _____
Title _____
Agency _____
Phone # _____

Federal:

Other:

Name _____
Title _____
Agency _____
Phone # _____

Name _____
Title _____
Agency _____
Phone # _____

Signatures:

Site Inspector's Comments: _____

Foreman's Signature: _____

Inspector's Signature: _____

Date: _____

Date: _____

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13.5 Scope Of Work/Project Objectives

13.5.1 Services Requested By Client

The cleaning and removal of underground storage tanks, related piping, any or all contaminated soils and/or debris, and the backfilling to grade of the excavation.

13.5.2 Proposed Scope Of Work

Flammable/Combustible Underground Storage Tank Removal Guidelines

I. PURPOSE

The purpose of this document is to outline and provide specific guidance for removal of underground storage tanks which contain, have previously contained, or are suspected to contain flammable/combustible liquids. A flammable liquid is defined as any chemical which has a flashpoint below 100 degrees Fahrenheit (100 F) or has a measurable Lower Explosive Limit (LEL) as indicated on combustible meter. A combustible liquid is defined as any chemical which has a flashpoint of or above 100 degrees Fahrenheit (100 F). This guideline is designed to enable Clean Harbors Inc. employees to identify and minimize the potential hazards associated with underground tank removals.

II. INTRODUCTION

During flammable tank removals, consideration should be given to the operations location and meteorological conditions that may increase the development of a flammable/explosive atmosphere in the area surrounding the site. Flammable storage tank removals that occur on high humidity days where there is little or no wind and are done in an area that is confined or enclosed by buildings or vehicles, may pose significant risk for the development of a flammable/explosive atmosphere.

Several steps can be taken to identify, determine and migrate the development of such an atmosphere. The first is to consider location and meteorological conditions throughout the job process. If conditions such as those described above occur during flammable liquid pumping or flammable tank removal, it is advisable to reschedule the operation for a day with less adverse weather conditions.

Atmospheric testing in the area surrounding the removal operation using a combustible gas meter will determine flammable gas concentrations. Should levels reach or exceed 5% of the lower explosive limit (LEL), operations should cease and the vapors should be dispersed.

Coppus blowers may be useful in dispersing and preventing the development of flammable vapors during tank removal or flammable pumping. Used in the exhaust mode (blowing), properly placed and effectively bonded and grounded (see Appendix A) the blower may create air movement sufficient to disperse vapors. Careful consideration must be given to location and other hazards that may cause an ignition source or hazard to develop. All sources of ignition must be kept a minimum of 50 feet from the nearest edge of the tank removal site.

III. PREPARATION

Prior to leaving for a job site, the foreman shall insure that the following items are addressed and completed.

- * A DIG-SAFE number has been obtained and is valid.
- * The proper Material Safety Data Sheets (MSDS) are available to the crew.
- * A sample of the tank contents has been taken and results are available, if the contents of the tank are unknown. (Contact CHAS or Health and Safety for proper flammable sampling procedures)
- * Check that all tools and equipment to be utilized on the job site are available and secured, explosion proof (if applicable)
- * All necessary work and/or fire permits, to complete the job, have been obtained.
- * Assure that appropriate utilities have been contacted if work is required on or near overhead/underground lines.

IV. SITE INSPECTION AND SAFETY MEETING

Upon arriving at the site, Clean Harbors personnel will perform the following steps prior to commencing work.

- * Cordon off and isolate the work area. A 50 foot perimeter should be identified for ignition source restriction. Signs should be posted limiting entry within the 50 foot perimeter. (i.e. "Authorized access Only - Keep Out")
- * Obtain all necessary work and/or fire permits if this has not already been done.

- * Assure that all overhead utility lines have been de-energized or rendered non-hazardous by the appropriate utility.
- * Determine where equipment will be positioned.
- * Visually inspect the site for other potential hazards which may effect the crews safety and/or performance.(i.e.. chemical, electrical, physical, welding, confined spaces, other operations in area, traffic, pedestrians, etc.)
- * Potential ignition sources will be eliminated within 50 feet ignition source free zone and smoking prohibited in the work area throughout the entire job.

Based on the evaluation of these and any other items, a Clean Harbors Inc. Confined Space Entry/Hazardous Work Permit will be completed and a safety meeting held with the crew. During this meeting the scope of work for the day and the related hazards will be discussed with the crew.

V. REMOVAL OF PRODUCT

In preparation of the product removal, the vacuum truck will be positioned parallel to the tank (with relation to wind direction) which are being pumped. The truck will also be grounded and bonded(see Appendix A) to eliminate the build-up of any static electricity and placed beyond the 50 foot perimeter.

During the pumping operation the following procedures will be followed.

- * Vapors being emitted from the vacuum trucks scrubber system will be vented to a height of twelve(12) feet above the grade of the surrounding area or three(3) feet above the highest building, which ever is greater.
- * Monitor, every ten(10) minutes, the work area and neighboring areas for flammable/explosive vapors that may develop during the pumping procedures.
- * If the lower explosive limit (LEL) reaches or exceeds 5%, in the work area and/or neighboring areas, all work activities shall cease and the vapors will be allowed to disperse.
- * Only when the LEL drops back below 5% in the work area and/or neighboring areas is work permitted to resume.

- * Potential ignition sources will be eliminated and smoking prohibited in the 50 foot work area throughout the entire pumping procedure.
- * If respiratory protection is necessary, it shall be worn at all times in the work area. The level of protection will be determined by consulting Clean Harbors Inc. respiratory protection program.

VII. INERTING OF TANKS CONTAINING FLAMMABLE LIQUID

After completing the pumping process, flammable liquid tanks will be partially excavated and then inerted using the following steps.

- * Excavate soil down to the top of the tank to expose all piping and tank openings.
- * Disconnect all lines, pump them free of product, and cap.
- * Loosen all other openings (i.e. bungs) on the top of the tank.

The tank shall then be inerted using carbon dioxide (dry ice). The dry ice will lower the oxygen content inside the tank to a level which will normally not allow combustion to take place, thus minimizing the threat of an ignition.

In order to maximize the effectiveness of the dry ice, it must be dispersed evenly throughout the tank. A ratio of ten(10) to fifteen(15) pounds of dry ice per one thousand(1,000) gallons of tank capacity, or as per state and local regulations, should be used.

After the dry ice has been introduced into the tank, vapors must be allowed to exhaust for fifteen(15) to twenty(20) minutes prior to excavating. These vapors will be allowed to exhaust using one of the following methods.

1. The vapors shall be allowed to exhaust from the tank using the existing vent line.
2. In the event that the vent line can not be used(i.e. plugged, line does not exist, etc.), the vapors shall be exhausted through the fill. If this is used, a flexible trunk shall be attached to the fill and elevated to a height of twelve(12) feet above the surrounding area or three (3) feet above the highest building.

Note: For tanks containing combustible liquids refer to section IX of this document.

During the exhausting time period, the following items will be observed.

- * Monitor, every ten(10) minutes, the work area and neighboring areas for flammable/explosive vapors that may develop during the inerting process.
- * If the LEL reaches or exceeds 5% in the work area and/or neighboring areas, all work activities shall cease and the vapors allowed to disperse.
- * Only when the LEL drops back below 5% in the work area and/or neighboring areas is work permitted to resume.

VIII. TANK EXCAVATION

The excavation of the remaining soil around the tank will continue until the tank is free to be moved. All excavated material will be stockpiled a minimum of two(2) feet from the edge of the excavation. If any of the excavated material is considered contaminated, it shall be stockpiled onto polyethylene.

Once the tank is free, wire cables will be attached to the lifting eyes. The tank will then be lifted and set down at an appropriate angle for the cleaning procedures. After the tank has been set at this angle it will be stabilized with soil, blocks, or by other acceptable means.

If entry into the excavation will be required during the cleaning procedures, the walls of the excavation shall be properly sloped prior to entry. The proper sloping angle will be determined using Clean Harbors Inc. "Trenching and Excavation" guidelines.

IX. TESTING AND VAPOR-REDUCED

After all liquid has been removed from the tank, the combustible gas level will be tested to determine if it is "vapor-reduced". If, after testing the tank, combustible gas levels are less than 5% LEL, the tank may be removed from the excavation and prepared for disposal. If, the tank has greater than 5% LEL, additional vapor-reducing procedures must be performed.

One of the following procedures must be used.

Note: Although Tank Cleaning/Washing is preferred, please refer to applicable State and/or Local regulations as they do apply and may vary.

1. Tank Cleaning/Washing: The tank cleaning procedures will involve the introduction of water into the high end of the tank. The water, along with any remaining product or sediment, will be pumped out of the lower end of the tank.

During the cleaning operations the following items will be observed.

- * Employees involved with the cleaning are required to wear full face respirators with chemical cartridges (GMA or equivalent).
- * The vacuum truck will be properly grounded and bonded. (see Appendix A)
- * Vapors which are being emitted from the vacuum trucks scrubber system will be vented to a height of twelve(12) feet above the grade of the surrounding area.
- * Monitor, every ten(10) minutes, the work area and neighboring areas for flammable/explosive vapors that may develop during the tank cleaning procedures.
- * If the LEL reaches or exceeds 5%, in the work area and/or neighboring areas, all work activities shall cease and the vapors allowed to disperse.
- * Only when the LEL drops back below 5% in the work area and/or neighboring areas is work permitted to resume.
- * Potential ignition sources will be eliminated and smoking prohibited in the 50 foot work area throughout the entire cleaning procedures.

If entry into the tank is required to perform additional cleaning, employees must follow Clean Harbors Flammable Confined Space Entry procedures. See section 13.8 of this document.

2. Inerting: See section VII - Inerting.
3. Purging: Exhaust vapors from the tank using the venting system. Purging will reduce the LEL content inside of the tank, thus minimizing the threat of an explosion. The vapors will be discharged using a blower and flexible trunk venting system. The following procedures will be followed during this process.
 1. The blower will be attached to one of the openings on the tank (i.e. bung hole, fill hole) and then grounded or bonded. (see Appendix A)

2. The flexible trunk will be attached to the blower and raised to a height of twelve(12) feet above the surrounding area or three(3) feet above the highest building.

3. The blower will be connected to an air compressor using the appropriate hose and then started.

During the exhausting time period, the following items will be observed.

- * Monitor, every ten(10) minutes, the work area and neighboring areas for flammable/explosive vapors that may develop during the purging process.
- * If the LEL reaches or exceeds 5% in the work area and/or neighboring areas, all work activities shall cease and the vapors allowed to disperse.
- * Only when the LEL drops back below 5% in the work area and/or neighboring areas is work permitted to resume.

X. EXTERIOR CLEANING AND LOADING

After the tank has reached a vapor-reduced state (less than 5% of the LEL) it can be removed from the excavation and placed onto polyethylene. The tank will be lifted using wire cable and guided with taglines. During this phase the tank will be kept clear (No closer than 15 feet) of all overhead lines. At no time is any employee to stand underneath the suspended tank or excavator bucket.

Once out of the excavation the outside walls of the tank will be cleaned free of any soil or debris. This shall be done using non-sparking tools (i.e. brass shovels and sledgehammers). After exterior cleaning, the tank will be loaded and securely fastened, to prevent movement, for disposal at a state certified scrap yard.

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XI. TANK CUTTING GUIDELINES 1

Prior to initiating this program, please review the following guidelines: Confined Space; Lock-out/Tag-out; Hot Work; Tank Removal; Physical Hazards; others, as appropriate.

TANK CONTENTS - Flammable Material ² (Flash Point less than 100°F)

- o Clean - (Water Wash)
- o Vent (to less than 10% LEL)
- o Inert (Carbon Dioxide, dry ice [or other inert gas with Health and Safety approval] to less than 8% Oxygen)
- o Cut into the tank starter holes and full cuts with pneumatic equipment only cooled with water)
- o Follow additional steps in CHI's Tank Removal Procedures

TANK CONTENTS - Combustible (Oils #2, #4, #6)

(A) ENTRY POSSIBLE

For tanks last containing fuel oil (#2, 4, & 6) that can be entered, may be cut using a torch, carbide blade (cut-off saw), reciprocating saw (sawzall), etc. provided all of the following criteria are met:

- i. Entered through an existing opening and cleaned of residual product and sludges;
- ii. The tank is vented with an appropriate air-driven coppus blower or equivalent;
- iii. Periodic monitoring is conducted (every five [5] minutes) of the tank atmosphere and the surrounding area. (Record all data, readings, etc.)
- iv. LEL readings remain below 10%.

(B) ENTRY NOT POSSIBLE

For tanks last containing fuel oil (#2, 4 & 6) and which CANNOT BE ENTERED FOR CLEANING may be cut using an electric reciprocating saw (sawzall) (protected with a GFCI) (or pneumatic reciprocating saw) (sawzall) provided all of the following criteria are met:

- i. All free (pumpable) product is removed.
- ii. Space is inerted (with Carbon Dioxide, dry ice [or other inert gas with Health and Safety approval] to less than 8% oxygen.) (Record all data, readings, etc.)

- iii. Upon cutting access to the tank, following note ¹ below, standard confined space entry procedures should be implemented for cleaning operations. If additional cutting of the tank is required (i.e.: for scrap dealer) AND the conditions in (Combustible (A) Entry Possible) above are met, then a torch may be utilized at that time. End plates may then be cut.

NOTES

- 1 Cutting - Due to tank weak points, cutting should be performed on the body of the tank (cylindrical portion) and NOT THE END (PLATES). If local regulations require the tank to be rendered "unusable" by having holes cut in the end plates, these cuts should only be made after entry and cleaning.

2 Flammables

- o Waste Oils Due to the potential of containing "flammable" material, tanks containing waste oil should be treated as last containing flammables.
- o Previous Contents If the previous contents of the tank was a flammable material, the tank should be considered a FLAMMABLE tank under this program. Exceptions to the requirements under FLAMMABLE MATERIALS will be evaluated by the Health and Safety Department on a case-by-case basis.

3 Guideline Changes

Deviations from or changes to this guideline must be approved by CHI's Standards Review Committee.

Reviewed by:

Mid-Atlantic	_____	Thomas J. Calter*
Midwest	_____	John C. Forster*
Northeast	_____	Mike Hatch*
Technical Services	_____	Paul Whiting*
Compliance	_____	Steve Pozner*
Health and Safety	_____	Robert Spielvogel*

*Signature on File
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Applicable Regulations

Please refer to applicable State and/or Local regulations as they may require other methods be used or additional action be taken..

Appendix A

GROUNDING - The process of connecting one or more conductive objects to the ground.

BONDING - The process of connecting two or more conductive objects together by means of a conductor.

13.6 Contaminants

13.6.1 Waste Type

Liquid	<u> X </u>	Solid	<u> S </u>
Gas	<u> </u>	Sludge	<u> S </u>
Other	<u> </u>		

13.6.2 Containment

Excavation	<u> X </u>	Lagoon	<u> </u>
Body Of Water	<u> </u>	Tank	<u> X </u>
Drums	<u> </u>	Tank Car	<u> </u>
Process Vessel	<u> </u>	Piping	<u> X </u>
Roll-Off	<u> </u>	Soil	<u> X </u>
Ground Water	<u> </u>	Other	<u> </u>

* Note: X = Known
S = Suspected

13.6.3 Substances Of Concern

The following table is provided as a summary of the chemicals known (X), or suspected (S) to be on site: (For more detailed information, see the specific reference source)

Concentration Range (ppm) Of Chemicals Found:

Chemical Name	Soil	Water	Air	Detection Instr.	X or S
Diesel Fuel	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
Fuel Oil #2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
Fuel Oil #6	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
Gasoline	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
Benzene	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> S </u>
Carbon Monoxide	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> S </u>
Hydrogen Sulfide	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> S </u>

Reference Source: Genium's Reference Collection
Material Safety Data Sheets
Genium Publishing Corporation

13.6.4 Chemicals To Be Used On site

The following table summarizes the chemicals to be brought on site and used by Clean Harbors Inc. personnel.

Chemical Name -----	Task Used For -----	Quantity Of Chemical -----	Conc. Of Solution -----
Dry Ice (Carbon Dioxide)	Inerting	11b. per 100 Gallons	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

13.6.5 Exposure Limits - Table 13-A

Table 13-A lists the accepted exposure limits of those substances outlined in Contaminants Of Concern and Chemicals To Be Used On Site.

Specific Substances Of Concern, (if known):

Diesel Fuel
Fuel Oil #2
Fuel Oil #6
Gasoline (regular, with anti knock additive)
Dry Ice (Carbon Dioxide)

Benzene (suspected)
Carbon Monoxide (suspected)
Hydrogen Sulfide (suspected)

Diesel Fuel

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA a	---	---
ACGIH	TLV-STEL b	---	---
OSHA	PEL-TWA c	---	---
OSHA	PEL-STEL d	---	---
IDLH e		None Established	

Fuel Oil

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	---	---
ACGIH	TLV-STEL	---	---
OSHA	PEL-TWA	---	---
OSHA	PEL-STEL	---	---
IDLH		None Established	

Fuel Oil #6

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	---	---
ACGIH	TLV-STEL	---	---
OSHA	PEL-TWA	---	---
OSHA	PEL-STEL	---	---
IDLH		None Established	

Gasoline

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	300	900
ACGIH	TLV-STEL	500	1500
OSHA	PEL-TWA	300	900
OSHA	PEL-STEL	500	1500
IDLH		None Established	

Dry Ice (Carbon Dioxide)

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA		
ACGIH	TLV-STEL		
OSHA	PEL-TWA		
OSHA	PEL-STEL		
IDLH			

Benzene

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	10 A2	30 A2
ACGIH	TLV-STEL	---	---
OSHA	PEL-TWA	1	---
OSHA	PEL-STEL	5	---

IDLH

NIOSH Potential Human Carcinogen

Carbon Monoxide

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	50	55
ACGIH	TLV-STEL	400	440
OSHA	PEL-TWA	35	40
OSHA	Ceiling i	200	229
OSHA	PEL-STEL	---	---
IDLH		1500	---

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Hydrogen Sulfide

		ppm	mg/m3
		-----	-----
ACGIH	TLV-TWA	10	14
ACGIH	TLV-STEL	15	21
OSHA	PEL-TWA	10	14
OSHA	PEL-STEL	15	21
IDLH		300	---

(For further information, refer to MSDS or contact Clean Harbors Health and Safety Department)

Notes: For table 13-A

- a - TLV-TWA ACGIH, Threshold Limit Value - Time Weighted Average
- b - TLV-STEL ACGIH, Threshold Limit Value - Short Term Exposure Limit
- c - PEL-TWA OSHA, Permissible Exposure Limit - Time Weighted Average
- d - PEL-STEL OSHA, Permissible Exposure Limit - Short Term Exposure Limit
- e - IDLH NIOSH, Immediately Dangerous to Life or Health; a maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without experiencing any escape impairing or irreversible health effects.
- f - A1 ACGIH, Known Human Carcinogen
- g - A2 ACGIH, Suspected Human Carcinogen
- h - Skin This attention calling designation refers to the potential contribution to the overall exposure through skin absorption, including mucus membranes and eye, either airborne or through direct contact with the substance.
- i - Ceiling ACGIH, The concentration that should not be exceeded during any part of the working exposure.

13.7 Emergency Numbers

Please insert emergency numbers of cities/towns for all states
were your office may do work.

13.8 Levels Of Protection

The levels of protection to be utilized by site personnel will be continually evaluated and controlled by the Site Health and Safety Representative. As further information becomes available, (e.g. air monitoring results), these levels of protection may be downgraded or upgraded as necessary, by the Site Health and Safety Representative with the approval of Clean Harbors' Manager of Occupational Health and Safety.

Task	Level of Protection
Excavation of underground tanks	D
Cleaning of tanks (diesel fuel/fuel oil)	C
Cleaning of tanks (gasoline)	B

13.9 Tasks

13.9.1 Excavation Of Underground Storage Tanks

This phase of the operation will include the following:

The excavation of overburden material to gain access to underground storage tanks for removal.

13.9.1.1 Hazard Identification

The chemical hazards associated with this task are anticipated to be low. It is believed that the integrity of the tanks are sound and surrounding soils are not contaminated with fuel oils, gasoline, or residues. Therefore based on available information (i.e. suspected classes of chemicals and respective toxicological information), and the anticipated low potential for inhalation of contaminants, dusts, and vapors, Clean Harbors Level D protection is anticipated.

The physical hazards associated with this task are anticipated to be low. These physical hazards are anticipated to include the use of excavation equipment and hand tools, as well as the excavation itself.

It will be the responsibility of the project supervisor to ensure that appropriate excavation procedures are followed and to ensure the general safety and integrity of the excavation. It will also be his/her responsibility to ensure the additional physical hazards of the task (i.e. excessive noise, potential eye hazards, etc.) have appropriate control measures implemented.

If entry into the excavation is deemed necessary, proper sloping and/or shoring will be instituted and the confined space entry hazards shall be continually monitored for oxygen deficient, combustible, and toxic atmospheres. Clean Harbors Confined Space Entry program shall be strictly followed.

The biological hazards associated with this task are anticipated to be low. It is believed that the integrity of the tanks are sound and the surrounding soils are not contaminated with fuel oils, gasoline, or residues. Therefore based on available information (i.e. suspected classes of chemicals and respective toxicological information), and the anticipated low potential for inhalation of contaminated dusts and vapors, Clean Harbors Level D protection is anticipated.

13.9.1.2 Work Practices/Engineering Controls

To reduce the potential hazards described above, on site personnel shall strictly adhere to the following site specific work practices and engineering controls.

Before an excavation is initiated all underground public utilities and facility services (i.e. electric, sewer, natural gas, water, etc.) shall be clearly identified and marked. Appropriate local authorization, shall also be obtained (i.e. digsafes, fire permit, consultation with client, etc.) before an excavation is initiated.

If possible a water mist shall be utilized during outdoor soil excavation and transfer operations to reduce the generation of dust and airborne contaminants.

13.9.1.3 Action Levels

If any of the following levels are exceeded and elevated concentration persists for more than five (5) minutes, Level D operations shall cease and personnel shall leave the area, immediately.

1. Airborne vapor concentrations are above 5 ppm
2. Any detectable concentrations on the combustible gas meter
3. Oxygen content is below 19.5% or above 22.0%
4. Carbon Monoxide, CO, is above 20 ppm
5. Hydrogen Sulfide, H₂S, is above 5 ppm

If concentrations do not return to levels appropriate for Level D protection (see above criteria), the site health and safety representative in cooperation with the project manager, shall evaluate the situation and determine the appropriateness of continuing operation in Clean Harbors Level C protection.

Note: If action levels of carbon monoxide and/or hydrogen sulfide are exceeded, Level D and/or Level C operations shall cease and Clean Harbors industrial hygienist or manager, occupational health and safety shall be contacted.

13.9.1.4 Personal Protective Equipment

Clean Harbors Level D protection shall be utilized and include the following:

- a) CHI work uniform
- b) Safety boots
- c) Gloves
- d) Eye protection
- e) Hard hat
- f) Hearing protection

If Clean Harbors Level C protection is deemed necessary by the site health and safety representative, it shall include the following:

- a) Full face piece air purifying respirator with MSA GMC-H Combo cartridge
- b) Poly coated Tyvek or Chem Tuff chemical resistant coveralls
- c) Disposable inner gloves
- d) PVC chemical resistant outer gloves
- e) Disposable boot covers
- f) Hard hat
- g) Hearing protection

In addition, all openings will be securely taped to further reduce the possibility of skin contact.

13.9.2 Cleaning Of Tanks (diesel fuel/fuel oil)

This phase of the operation will include the following:

The pumping or residual liquids/ solids from tanks and if necessary the confined space entry to perform final cleaning procedures.

13.9.2.1 Hazard Identification

The chemical hazards associated with this task are anticipated to be moderate. These chemical hazards are anticipated to include the potential hazards associated with exposure (i.e. inhalation, ingestion, and/or skin contact) to the fuel oil constituents.

The physical hazards associated with this task are anticipated to be moderate. The physical hazards are anticipated to include the operation of the vacuum truck including but not limited to hazards of handling hose and excessive noise. Additional hazards associated with the space include: potential fire/explosion; isolation of tanks from process feed lines; and lockout/tagout of all electrical control. Additional hazards result from the actual entry into the excavation. This now corresponds with confined space entry hazards as well as hazards related to cave ins, lose footing, tools/rocks falling on workers, etc..

The biological hazards associated with this task are anticipated to be moderate. These biological hazards are anticipated to include the potential hazards associated with exposure, (i.e. inhalation, ingestion, and/or skin contact) to the fuel oil constituents, as well as the potential hazards of confined space entries. These include but are not limited to the following:

1. oxygen deficient/enriched atmospheres
2. toxic atmospheres
3. flammable/ combustible atmospheres

13.9.2.2 Work Practices/Engineering Controls

To reduce the potential hazards described above, onsite personnel shall strictly adhere to the following site specific work practices and engineering controls.

Several attempts shall be made to remove material from outside of the tanks before entry is considered. Entry into the tanks shall be performed only as a last resort. If entry is deemed necessary Clean Harbors Confined Space Entry procedure shall be strictly followed.

In addition, monitoring for oxygen deficient/enriched, toxic, and combustible atmospheres shall be performed prior to entry and on a continuous basis thereafter.

Ventilation (i.e. Coppos blower) shall be utilized to reduce/eliminate hazardous atmospheres within the tank to acceptable levels for entry, and during all phases when CHI employees are inside the tank. The blower, used in a manner to draw vapors from inside the tank, shall be properly bonded and grounded, and exhausted to a controlled area away from ignition sources and other site operations. The discharge area of the blower shall be monitored to assure that combustible vapors do not exceed 5% of the LEL. If 5% LEL is exceeded, ventilation shall cease and vapors will be permitted to dissipate.

In addition, wind direction shall be monitored, (utilizing a wind sock) and employees shall stand upwind of the work area. Relocate employees if wind shifts.

13.9.2.3 Action Levels

If any of the following levels are exceeded, Level C operations shall stop immediately and personnel shall immediately leave the area.

1. Airborne vapor concentrations are above 250 ppm
2. Lower explosive limits are above 10%
3. oxygen content is below 19.5% or above 22.0%
4. Carbon monoxide, CO, is above 20 ppm
5. Hydrogen Sulfide, H₂S, is above 5 ppm

Note: If concentrations do not return to level appropriate for Level C protection, (see above criteria), operations shall cease and Clean Harbors industrial hygienist or manager, occupational health and safety shall be contacted.

13.9.2.4 Personal Protective Equipment

Clean Harbors Level C protection shall be utilized and include the following:

- a) Full face piece air purifying respirator with MSA GMC-H Combo cartridge
- b) Ply coated Tyvek or Chem Tuff chemical resistant coveralls
- c) Disposable inner gloves
- d) PVC chemical resistant outer gloves
- e) Disposable boot covers
- f) Hard hat
- g) Hearing protection

In addition, all opening shall be securely taped to further reduce the possibility of skin contact.

13.9.3 Cleaning of Tanks (gasoline)

This phase of the operation will include the following:

The pumping of residual liquids/solids from tanks and if necessary, the confined space entry to perform final cleaning procedures.

13.9.3.1 Hazard Identification

The chemical hazards associated with this task are anticipated to be moderate. These chemical hazards are anticipated to include the potential hazards associated with exposure (i.e. inhalation, ingestion, and/or skin contact) to the gasoline constituents.

The physical hazards associated with this task are anticipated to be moderate. These physical hazards are anticipated to include the operation of the vacuum truck, including , but not limited to, hazards of handling vacuum hose, and excessive noise. Additional physical hazards stem from the actual entry into the excavation. These would correspond with confined space entry hazards, as well as, hazards related to cave ins, loss of footing, tools/rocks falling on workers, etc..

The biological hazards associated with this task are anticipated to be moderate. These biological hazards are anticipated to include the potential hazards associated with exposure (i.e. inhalation, ingestion, and/or skin contact), to the gasoline constituents, as well as, the potential hazards of confined space entries; these include but are not limited to the following:

1. Oxygen deficient/enriched atmospheres
2. Toxic atmospheres
3. Flammable/combustible atmospheres

13.9.3.2 Work Practices/Engineering Controls

To reduce the potential hazards described above, on site personnel shall strictly adhere to the following site specific work practices and engineering controls.

Several attempts shall be made to remove material from the outside of the tanks before entry is considered, entry into the tanks shall be performed only as a last resort. If entry is deemed necessary, Clean Harbors confined space entry procedure shall be strictly followed.

In addition monitoring for oxygen deficient/enriched, toxic, and combustible atmospheres shall be performed prior to entry and on a continuous basis thereafter.

Ventilation (i.e. Coppus blower) shall be utilized to reduce/eliminate hazardous atmospheres inside the tank to acceptable levels for entry, and during all periods when Clean Harbors employees are inside the tank. The blower, used in a manner to draw vapors from inside the tank, shall be properly bonded and grounded, and exhausted to a controlled area away from ignition sources and other site operations. The discharge area of the blower shall be monitored to ensure that flammable vapors do not exceed 5% of the LEL. If 5% LEL is exceeded, ventilation shall cease and vapors will be permitted to dissipate. All ignition sources within a fifty foot radius of the tank shall be identified and neutralized. A sign indicating the following shall be posted in this fifty foot hot zone:
Danger, Flammable Liquid, No Smoking Or Open Flame Within 50 Feet

In addition, wind direction shall be monitored, and employees shall stand upwind of the work zone, relocate employees if wind shifts.

13.9.3.3 Action Levels

If any of the following levels are exceeded, Level B operations shall stop immediately and personnel shall immediately leave the area:

1. Airborne vapor concentrations are above 500 ppm
2. Lower explosive limit is above 10%
3. Oxygen content is above 22.0%
4. Carbon monoxide, CO, is above 1,500 ppm
5. Hydrogen sulfide, H₂S, is above 300 ppm

If concentrations do not return to levels appropriate for Level B protection, operations shall cease and Clean Harbors industrial hygienist or manager, occupational health and Safety shall be contacted.

13.9.3.4 Personal Protective Equipment

Clean Harbors Level B protection shall be utilized and include the following:

- a) Full face piece, pressure demand, SCBA, or supplied air respirator
- b) Poly coated Tyvek or Chem Tuff chemical resistant coveralls
- c) PVC, chemical resistant cover suit
- d) Disposable inner gloves
- e) PVC, chemical resistant outer gloves
- f) Disposable boot covers
- g) Hard Hat
- h) Hearing protection

In addition, all openings will be securely taped to further reduce the possibility of skin contact.

13.10 Work Zones

The specific location and size of the work zones will be determined by the Site Health and Safety Representative in cooperation with the Project Manager. Their decision will be based on the latest available information including scope of work, environmental conditions, site conditions, and the latest sampling results.

13.11 Site Monitoring

13.11.1 Monitoring Equipment

HNU	<u> X </u>	OVM	<u> </u>
OVA	<u> </u>	O2/CGM	<u> X </u>
Detector Tubes	<u> X </u>	Photovac	<u> </u>
Personal	<u> </u>	Hg Vapor	<u> </u>
Sampling Pump	<u> </u>	Analyzer	<u> </u>
Radiation Meter	<u> </u>	Other	<u> </u>

13.11.2

Frequency And Method Of Site Sampling

The site supervisor, foreman, or competent person will be responsible for ensuring adequate air monitoring is conducted and that adequate personnel protection and site integrity are maintained. Air monitoring shall be conducted periodically, (i.e., at a minimum, every 15 minutes), and when changes occur in work practices, procedures, locations, or tasks.

The site supervisor, foreman, or competent person shall be responsible for ensuring a daily, site/personnel monitoring log, (using CHI Atmospheric Monitoring Log, or equivalent), is maintained on site.

If confined space entry is required, monitoring for combustible, oxygen deficient/enriched, and toxic atmospheres shall be conducted prior to entry and on a continuous basis thereafter.

13.12 Decontamination

All personnel and equipment, leaving the Exclusion Zone, will be thoroughly decontaminated before passing through the Support Zone. It will be the responsibility of the site supervisor, foreman, or competent person, in cooperation with the Project Manager to designate decontamination stations, as necessary, and to continually evaluate and implement the site specific decontamination procedures.

Based on the associated hazards and levels of protection required with this operation, the following steps shall be followed during the decontamination of personnel and personal protective equipment:

Step 1 - Segregated Equipment Drop

Deposit equipment used on site on plastic drop cloths

Step 2 - Boot cover, glove, chemical-resistant coveralls wash/rinse

Outer gloves, boot covers, and chemical protective clothing will be rinsed to remove any visible contaminants

Step 3 - Tape Removal

Remove tape from around boot covers and outer gloves and deposit in appropriate waste containers

Step 4 - Boot Cover And Outer Glove Removal

Remove boot covers, followed by outer glove removal, and deposit in appropriate waste container

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- Step 5 - Chemical Resistant Suit Removal
Remove chemical resistant suit and deposit in appropriate waste container
- Step 6 - Respirator Removal
Remove respirator and place in soap/water solution for further cleaning and decontamination
- Step 7 - Inner Glove Removal
Remove inner gloves and place in appropriate waste container

The site supervisor, foreman, or competent person shall be responsible for establishing the appropriate decontamination stations at which these steps shall be performed.

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13.13 Appropriate Material Safety Data Sheets (MSDS)

Pro4736

Revised (1): 10/90
(2): 12/91

CONFINED SPACE ENTRY GUIDELINES

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These guidelines specify the steps that should be followed prior to and during entry into confined spaces.

I. Background

Confined Spaces are locations that by design satisfy the following definition:

- Limited means of entry or exit;
(Limited by configuration, location, size, number, etc.)
- Poor natural ventilation that could contain, retain or produce an: oxygen deficient, flammable or toxic atmosphere; and
- Not intended for continuous worker occupancy.

Confined spaces present the risk of oxygen deficiency, flammable atmosphere and/or toxic environments as well as physical hazards such as electrocution, mechanical activation, inadequate lighting, etc. Confined space entry risks can be minimized by understanding the hazards and taking appropriate corrective action.

Clean Harbors, Inc. (CHI) confined space entry program is designed to enable CHI employees to identify confined space hazards and minimize their risks. The program includes: instruction in confined space hazards (provided during CHI's 40 hour training program and during "weekly" training); written program hazard information (CHI's confined space entry program in the "Green Book"); and practical instruction provided during 40 hour training. These guidelines complete the elements of CHI's confined space program. Please contact the Health and Safety Department for special precautions or additional information.

II. Responsibilities

A. Foreman

1. General

The foreman (lead person) is responsible for both the thorough completion and safety of all aspects of confined space entry operations to which they are assigned. He/she has the authority to assign responsibilities; the authority to hold crew members accountable for those responsibilities; and the responsibility to discontinue operations if any situation poses a threat to the safety of the operation or crew members.

2. Specific Responsibilities

- . Assign responsibilities (tasks);
- . Conduct and document the safety meeting;

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- . Select appropriate safety equipment - Respirator, protective clothing, lighting, rescue equipment;
- . Identify unique characteristics of the space;
- . Assure the communication system is established; and
- . Assure all participants are familiar with emergency procedures and the above information.

B. Standby - (Also called Attendant)

- . Conduct appropriate monitoring of the space;
- . Maintain constant communications;
- . Initiate rescue procedures (if required);
- . Discontinue operations in the event the safety of the operation is compromised; and
- . Document monitoring results and operational conditions on permits.

C. Entrants

- . Understand characteristics of the space;
- . Adhere to all instructions provided by the Foreman (lead person) and Standby;
- . Notify Standby and Foreman of any conditions that compromise the safe conduct of a confined space entry; and
- . Wear all assigned safety equipment.

D. Health and Safety

- . Provide technical assistance to aid crews to identify space characteristics; and
- . Conduct site visits to audit compliance with these guidelines.

III. Entry Guidelines

A. Safety Meeting

1. Frequency

- . A Safety meeting should be conducted at the following times:
 - Prior to the start of any activity;
 - Once the foreman has characterized the space (prior to the start of any activity);
 - Whenever new tasks are initiated-such as when the next boiler in a series will be entered;
 - For newly assigned entrants, standby, etc.; and
 - A minimum of once per shift, preferably at the start of each operation.

2. Content

The following information must be discussed:

- Chemical and physical hazards of the space and surrounding area;
- Rescue procedures;
- Material Safety Data Sheets;
- Work assignments; and
- Responsibility of each job function.

3. Documentation

a. The foreman (or his/her designee) must document the following information on the Confined Space Permit:

- Information discussed;
- Those in attendance;
- Any questions posed by the crew; and
- Work assignments.

b. Signature

- Each crew member must sign the permit once they are satisfied they understand all operational and safety aspects of the assigned work.

c. Withholding Signature

- Any crew member who has not had his/her questions answered to their satisfaction, does not thoroughly understand their responsibilities, or is unsure of methods to safely perform the operation may withhold their signature until their questions are answered and the information is provided. No entrants will be compelled to enter a confined space until they understand and agree to information indicated in A.2 above.

d. Agreement

- An entrants signature is his/her indication that they understand the hazards, agree to their responsibilities and have had all questions answered to their satisfaction.
- No entrant shall be compelled to sign his/her name but should do so only after receiving adequate explanation of applicable information.

B. Monitoring

1. Substances - The following substances must be evaluated (in the order listed below):

- Oxygen;
- Combustible Gas; and
- Toxic.

2. Monitoring Locations

A representative number of locations and samples must be obtained to properly characterize the space.

- a. General

This should be done from OUTSIDE the space, initially and continued while work is being performed. See section B.6. if the entire space cannot be characterized from OUTSIDE prior to entry.

The following should be considered:

- Remote locations;
- Space Volume - larger spaces require more samples; and
- Sumps, low spots, dead spots.

- b. Locations

<u>SPACE VOLUME (IN GALLONS)</u>	<u>or</u>	<u>HEIGHT/ WIDTH</u>	<u>MINIMUM SAMPLING LOCATIONS</u>
20,000		feet	1
20,000-50,000		20 feet	2
50,000-100,000		30 feet	3
>100,000		50 feet	4

3. Monitoring Guidelines

The top, middle and bottom at each location shall be evaluated as chemical may stratify.

Remote locations, where chemicals may accumulate must also be evaluated. This may require entry to accomplish. See Section B.6.

4. Frequency

- a. General - So far as possible, the standby should evaluate the substances identified in B.1. above, continuously.

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- b. Monitoring Frequency - Standard conditions. If standard concentrations (indicated in B.5. below) were found in each location upon initial evaluation and no hazard increasing activity (See B.7.) are being performed, the frequency of monitoring may be reduced to once every 15 minutes.
- c. Spaces shall be remonitored before re-entry when:
- All entrants leave the space, i.e. for breaks
 - Space lapse from view of standby

5. a. Acceptable Conditions

MATERIAL

ACCEPTABLE CONCENTRATIONS

Oxygen	19.5 - 22.0%;
Flammable	<10% LEL; <u>AND</u>
Toxic	<1/2 the "Allowable Limit"

b. "Non-Standard" Conditions

If the following situations occur, additional action must be taken to reduce the potential hazards:

- Concentrations beyond the range listed in B.5.a. are detected;
- All materials listed under Acceptable Conditions cannot be measured;
- The entire space cannot be characterized;
- "Unknown" conditions exist.

c. Methods to Obtain Acceptable Conditions - The following action may help bring or maintain Acceptable Conditions or permit entry in "non-standard" situations:

- Ventilation;
- Level "B" protection;
- Remove product from the space (from outside);
- Clean the space (from outside); and
- Inert the atmosphere (contact Health and Safety prior to inerting any Confined Space where ENTRY will be performed).

d. Restricted Entry

A confined space containing any of the following conditions SHALL NOT be entered:

- LEL is greater than 10%;
- Oxygen Concentration exceeds 22.0%; and
- One-half the IDLH is exceeded.

6. Entry for Representative air monitoring

- a. If entire space cannot be adequately monitored from the outside, the first person entering the space must monitor remote locations. (Entry to perform this work can only be done when ACCEPTABLE CONCENTRATIONS are found at all (any) accessible monitoring location and B.5.d. conditions do not exist) If ACCEPTABLE CONCENTRATIONS are not found, entry cannot occur. (Contact Health and Safety.)

The person performing this operation must use the following equipment:

- Airline respirator with escape bottle or SCBA;
- Harness, lifeline and tethered; (Refer to Section G.1.C.)
- Appropriate protective clothing; and
- Adequate lighting.

NOTE: A tripod and extraction winch must be used during this aspect of the operation.

- b. Standby - During this in-space monitoring, the standby person must be suited in a harness wearing an SCBA without the facepiece on, or a separate airline (cascade) system available. (Refer to II.B. for additional requirements.)
- c. Verbal Communications must be continuous
- d. If there is failure of communication for 15-30 seconds, the crew should begin pulling the entry person out with the winch (Special considerations may be required if the space is baffled). Entry of the standby may be necessary. Emergency assistance must be sought and available on-site before rescue is initiated first. (See Rescue III. H.)
- e. Once the entire space is tested and ACCEPTABLE CONCENTRATIONS are attained the space may be entered. If Acceptable Concentrations are not found refer to III.B.5. b-d.
- f. Record the air monitoring readings on the CONFINED SPACE PERMIT.
- g. The first entry person should discuss any hazards observed in the space with the crew.

7. Hazard Increasing Activities

The following activities may increase the hazards that exists inside the space. Hazards may develop as a

result of these activities. Therefore, special considerations should be given to precautions including: more frequent monitoring; ventilation; mandatory rescue equipment; more effective lighting; etc.

- Cleaning with chemicals;
- Welding and/or cutting (whether oxy-acetylene, sawzall, etc.);
- Movement of sludges, i.e. "mucking";
- Exhaust producing equipment used in the space i.e. generators, vehicles; and
- Space cannot be thoroughly characterized.

8. Documentation

All readings must be recorded on:

- Confined Entry Permit;
- Air Monitoring Log form;
- Additional forms; and
- Blank paper, if additional room is needed.

9. Monitoring - Where mechanical ventilation is used. To monitor a space where ventilation is used, it will be necessary to shut down the ventilation during monitoring (if this does not create an Immediately Dangerous to Life and Health (IDLH) situation.) Immediately upon the shut down of the system, the space should be evacuated following information in Section III.B.

If ventilation is used, monitoring frequency may be reduced to once every 15 minutes, if the above guidelines are followed.

Alternative monitoring methods when using mechanical ventilation may be available. Contact the Manager-Occupational Health and Safety.

C. Isolation

1. General - To assure that mechanical and electrical energy or chemicals are not inadvertently or unexpectedly introduced to the space, the space must be isolated.

2. Product Lines

a. General Requirements

- Physically disconnect all product lines;
- Block all lines (Double block with "pans");
- Bleed materials from both sections;
- Disconnect and block overflow lines;
- Alternatives (May be used with concurrence of Health and Safety) including:

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- Close valves and remove handles;
- lock-out and tag-out each valve;
- Remove product from drain valve;
- Check to assure that drain valves are not plugged; and
- Refer to CHI's Lock-out/Tag-out program

b. Location - Any blanking should be done at the flange nearest the space.

3. Mechanical - Refer to CHI's Lock-out/Tag-out program.

4. Electrical - Refer to CHI's Lock-out/Tag-out program.

D. Communications

1. General

Prior to any entry, an adequate system of communication must be established between the standby and entrants. This must be assured by the foreman. This may be in the form of electronic, verbal, line-jerk signals, or sound (i.e. periodic taps on a vessel.)

2. Communication Interruption

If communication is interrupted for more than 30 SECONDS, an emergency may exist and the Standby MUST call for an emergency and initiate rescue procedures.

E. Permit

1. Responsibility

a. Foreman - The foreman is responsible for recording meeting minutes, appropriate protective equipment, unusual conditions, space hazards, and other information pertinent to the entry.

b. Standby - The standby person is responsible for recording monitoring results, entrants in and out times, etc. on the permit.

2. Completion

A permit must be completed for each confined space that is entered. If a job requires entering several different spaces, for example two or three different boilers in one building, one permit must be completed for each boiler.

3. Expiration

A permit is valid for the lesser of the following:

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- One shift (not to exceed eight (8) hours
- When a new crew is assigned
- If the space lapses from view, such as during lunch breaks
- If the crew leaves the site

4. Form

The Confined Space Permit/Hazardous Work Permit shall be used and thoroughly completed.

F. Personal Protective Equipment (PPE)

1. Selection - Selection of personal protective equipment will be based on site conditions. The Health and Safety Guidance Manual will be consulted for selection of respirators and protective clothing.
2. Equipment - The following must be considered when evaluating appropriate personal protective equipment.

a. Respirator - Refer to CHI's Respiratory Protection Program

- Level "B" is REQUIRED for entry into the following spaces:
 - o When organic vapor concentrations exceed ten times, one-half the allowable limit or 1000 ppm, whichever is lower;
 - o If a chemical cartridge is not available or provides inadequate protection at concentrations measured for substances known to be present; and
 - o If substance cannot be monitored (Egress unit must be used.).
 - o Oxygen levels are below 19.5%

b. Protective Clothing - Refer to the Chemical Protective Clothing Program for:

- Clothing; and
- Gloves.

c. Eye Protection -

1. Considerations - form of material i.e. dust, liquid, vapor, projectile, etc.

- Energy exerted - If this is anticipated, you may wish to increase level of eye protection.

2. Forms

- a) Eyeglasses with side shield - minimum requirement-acceptable in situation where no forcible projectile, flying objects, (liquid or

solid) is anticipated. Not acceptable for liquids handling.

b) Goggles - When solid material is being handled and flying objects can be anticipated. i.e. digging, grinding, solid substance mixing, pick work, etc.

c) Chemical Protective Goggles - Required whenever handling liquid material that can splash. Required for all liquids including acids, caustics, solvents.

d) Face Shield - A face shield is required when handling acids and caustics.

NOTE - Whenever caustic, acidic or solvents liquids are handled a mechanism to flush the eyes and face must be available.

e) Substitution - Full facepiece respirators (where applicable) may be substituted where it provides equal or greater protection.

d. Hearing Protection - This equipment is required whenever mechanical, electrical or pneumatic equipment is used on a site or force will be applied i.e. hammering, pounding, etc.

e. Foot Protection - Steel toe shoes are required on all CHI operations.

Rubber overboots may also be necessary to protect employees. These must be steel toe unless they can fit over employee's steel toe shoes.

f. Head Protection - Hard hats are required whenever an overhead hazard exists or projectiles are anticipated.

3. Minimum Required PPE

The following PPE must be worn on every Confined Space Entry:

- Appropriate Respirator Protection - Unless an exemption is granted by Health and Safety;
- Protective Clothing;
- Eye Protection; and
- Foot Protection.

The flushing equipment need not be owned by Clean Harbors so long as it is:

- functional (provides adequate flushing capabilities);
- readily accessible (within 10 feet of the space portal);
- pH is neutral; and
- available for use.

4. Lighting

- o All work areas shall be adequately lighted for the work being performed.
- o Portable lighting fed by 110 volt supply must be equipped with either:
 - a low voltage isolation transformer; or
 - protected with a ground fault circuit interrupter (GFCI)
- o All lighting equipment shall be approved for use in Class I, Division I Hazardous location.

H. Emergency Procedures

In the event communications are interrupted (See Section III.D.) or an emergency develops, the following steps must be initiated by the Standby Person:

- Lower background noise;
- Call for an emergency - This can be verbal, i.e. yelling out, or calling fire, police, rescue numbers listed on the permit;
- Assess problem;
- Attempt to remove entrants if lifelines are used and the emergency is not a physical injury;
- Don rescue PPE (SCBA, or separate air line with escape unit, harness, lifeline);
- Prepare to provide information to rescue personnel;
- DO NOT ENTER - Wait for arrival of rescue personnel.
 - Never enter a space to initiate rescue unless the reason for the emergency has been determined and qualified assistance is available.

NOTE: If ventilation equipment is available and a oxygen deficiency or toxic atmosphere is anticipated, begin or increase air movement into the space. DO NOT do this if the emergency is a fire.

I. Mechanical Ventilation

A. General

Ventilation may be used to:

- Maintain Acceptable Concentrations;
- Reduce the hazard presented by toxic, oxygen deficient or flammable environment; and
- Dilute concentration to standard concentration.

B. Technique

- Air should be exhausted from the space;
- Only pneumatic driven eductors ("Coppus Blowers") are acceptable (Contact Health and Safety if another form is needed);
- Down wind locations must be monitored to assure toxic and flammable material does not create a hazard. This should be done every 15 minutes.
NOTE: The Standby may not be available to do this as a result of communication responsibilities;
- The eductor must be properly bonded and grounded;
- Arrange the unit to avoid recirculation or channeling of air;
- Remove air at the point closest to the location of maximum contamination. i.e. directly above a pool of oil at the bottom of a tank; and
- Arrange the system so that fresh air is drawn through the employee's breathing zone.

J. CPR/Basic First Aid

A minimum of two people working on each Confined Space Entry must maintain current (within one year) valid CPR/Basic First Aid training.

One of the CPR/Basic Training First Aid must remain outside the space at all times.

K. Hot Work

Refer to CHI's Hot Work Guidelines.

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APPENDIX G
DLA PCB Disposal Contract

PCB Contract

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C.O. SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 DISPOSAL OF PCB AND PCB CONTAMINATED MATERIAL

The Contractor agrees to provide all services necessary for the disposal of PCB and PCB contaminated material listed in the schedule. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation including manifesting or completing waste profile sheets) equipment and the compilation and submission of all documentation required by the clause at G.3, G.8, or G.9, below. All PCB and material contaminated with PCBs under this contract shall be transported and disposed of within the continental United States (except for such outside transportation and disposal as would be required for ocean incineration). All PCB and material contaminated with PCBs shall be disposed of in accordance with U.S. Environmental Protection Agency guidelines in 40 CFR Part 761 entitled "Polychlorinated Biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions", except that use, reuse and/or recycling of certain PCBs and material contaminated with PCBs. However, for purposes of this contract, all PCBs and material contaminated with PCBs will be disposed of in accordance with paragraph (e) and (f) below. The Contractor is cautioned that he is solely responsible to ascertain the extent to which 40 CFR Part 761 affects the operations resulting from this solicitation and to comply therewith.

(a) PCB ARTICLES

For purposes of this contract, the term PCB articles is defined to mean electrical components other than transformers and capacitors. The term PCB articles includes, but is not limited to: switches, regulators, filters, reactors, reclosers and rectifiers.

(b) MIXED PCB ITEMS

For the purpose of this contract, the term mixed PCB items is defined to mean PCB items in drums, including but not limited to, transformers less than 1 KVA, small capacitors, switches, regulators, filters, reactors, reclosers, and rectifiers.

(c) PCB DEBRIS

For the purpose of this contract, PCB debris means rags, clothing, drums, cans, pallets, wood, spill residue, etc.

(d) PCB CONTAMINATED SLUDGES

For the purpose of this contract, PCB contaminated sludges shall not be offered to contractor in bulk tanks unless the sludge is in pumpable condition.

AMENDMENT 0001

C.1 (Cont'd)

(a) DISPOSAL METHODS

The Contractor shall dispose of all materials in a manner which is in conformity with 40 CFR 761.60, except for those methods in said regulation which would result in use, reuse or recycling of the contract property. For the purpose of this contract, conversion of PCB transformers to non-PCB transformers is prohibited and does not constitute disposal. All products of detoxification (refer (1), (5), (8), and (11)) will be incinerated or buried in an approved facility. Methods of disposal and disposal facilities shall be approved by USEPA and other government agencies.

- (1) PCB fluids (and PCB contaminated sludge) over 500 ppm shall be incinerated or detoxified (in a facility approved for PCB disposal.)
- (2) Transformers containing PCB fluids over 500 ppm shall be drained, refilled with a solvent in which PCBs are readily soluble, allowed to let stand for 18 hours, then be redrained and the solvent analyzed for PCB content. PCB fluid shall be disposed as per (1). The solvent shall be disposed as per (1) or (3) or (8) or (15) depending on the results of the PCB analysis. The items shall be buried in a facility approved for PCB disposal.
- (3) PCB articles containing PCB fluids over 500 ppm shall be drained and buried in a facility approved for PCB disposal. The fluid shall be disposed as per (1).
- (4) Drained transformers previously containing PCB fluids over 500 ppm shall be refilled with a solvent in which PCBs are readily soluble, allowed to let stand for 18 hours, then be redrained and the solvent analyzed for PCB content. This fluid shall be disposed as per (1) or (3) or (8) or (15) depending on the results of the PCB analysis. The items shall be buried in a facility approved for PCB disposal. Drained articles will not be refilled. They will be buried in a facility approved for PCB disposal.
- (5) PCB fluids and PCB contaminated sludge between 50-499 ppm will be detoxified, incinerated, or buried in a facility approved for PCB disposal.
- (6) Transformers and articles containing PCB fluids between 50-499 ppm will be drained and the fluid disposed as per (5). Containers will be buried in a facility approved for PCB disposal.
- (7) Nonliquid PCBs in the form of contaminated rags, soil, or other debris shall be incinerated or buried in a facility approved for PCB disposal.
- (8) PCB fluids and PCB contaminated sludge below 50 ppm will be detoxified, incinerated, or buried in a facility approved for PCB disposal.
- (9) Transformers and articles containing PCB fluid below 50 ppm will be drained and the fluid disposed as per (8). Containers will be buried in a facility approved for PCB disposal.
- (10) Drained transformers and articles previously containing PCB fluid below 500 ppm will be buried in a facility approved for PCB disposal. (as defined by 40 CFR 761.3)

C.1 (Cont'd)

(11) Large PCB capacitors shall be detoxified, incinerated, and/or buried in a facility approved for PCB disposal. (as defined by 40 CFR 761.3)

(12) Small PCB capacitors shall be buried in a facility approved for PCB disposal.

(13) Mixed PCB items shall be incinerated, or the items may be removed from the drums and individually treated in accordance with (1) through (12).

(14) All products of detoxification (1) (5) and (8) will be incinerated or buried in an approved facility. Methods of disposal and disposal facilities shall be approved by USEPA and other government agencies.

(15) The solvents that are used to flush the transformers may be distilled/detoxified. When a facility has been approved by the USEPA to distill/detoxify, the Contractor must document this fact and obtain DRMS approval prior to the initiation of either of these processes.

(F) ALTERNATE DISPOSAL METHOD

(1) "Total Destruction" may be utilized for the disposal of all PCB materials when the disposal facility has necessary local, state and federal environmental licenses and is an environmentally responsible and permitted recovery center.

(2) Contractors choosing to dispose of all materials by "total destruction" shall:

(i) Dismantle all transformers and articles for separation into components.

(ii) Incinerate all liquids and all non-metallic solids in accordance with 40 CFR 761.70.

(iii) Complete secondary cleaning of all metals for removal of PCBs prior to melting for recycling.

(g) DRMS reserves the right to audit facility processes for the alternate disposal method prior to their approval.

AMENDMENT 0001

C.0 SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT() C.2 STATEMENT OF WORK

The Contractor agrees to provide all services necessary for the final treatment/disposal of the hazardous waste listed in the schedule in accordance with all local, state, and federal EPA solid and hazardous waste laws and regulations, specifically Resource Conservation and Recovery Act (RCRA); and all the terms and conditions of this contract. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, including manifesting or completing waste profile sheets) equipment, and the compilation and submission of all documentation required by the clause at G.3, G.8, G.9, or G.10, below. All items listed in the schedule, regardless of their condition, are being discarded by the Government and are considered to be hazardous waste.

() C.3 STATEMENT OF WORK

The Contractor agrees to provide all services necessary for the final treatment/disposal of the hazardous waste listed in the schedule in accordance with all local, state, and federal laws, and regulations, and the terms and conditions of this contract. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation including manifesting or completing waste profile sheets) equipment and the compilation and submission of all documentation required by the clause at G.3, G.8, or G.9, below. All items listed in Part I of the schedule, CLINs 6001 thru 5999, regardless of their condition, are being discarded by the Government and are considered to be hazardous waste. Items listed in Part II of the schedule, CLINs 6000 thru 6500, are not considered to be Resource Conservation and Recovery Act/state regulated hazardous waste.

(X) C.4 PROCESSING (PCBs)

Contractor shall not drain and/or flush PCB items at Government installations. Draining will be allowed only to prevent leaking and to meet Department of Transportation Regulations.

(X) C.5 DEPARTMENT OF TRANSPORTATION REQUIREMENTS

The Contractor will comply with, and ensure that all applicable subcontractors comply with, all requirements of United States Department of Transportation (DOT) Regulations, 49 CFR Parts 100-199, regarding waste transportation under this contract. Complete compliance with these regulations shall include, but not be limited to, ensuring that emergency response information is carried on transport vehicles and maintained at facilities where hazardous materials are received, stored, or handled during transportation. Shipping papers will contain an emergency response telephone number supplied by the disposal contractor which is monitored 24 hours a day in order to provide immediate, detailed emergency response information to personnel reacting to emergencies. Technical names will be included in the descriptions of materials reflected on shipping papers by "not otherwise specified" (N.O.S.) descriptions. Definitions of the terms used in this clause are those used in 49 CFR 100-199.

C.6 SPILL RESPONSIBILITY

(a) The Contractor is solely responsible for any and all spills or leaks during the performance of this contract which occur as a result of or are contributed to by the actions of its agents, employees, or subcontractors. The Contractor agrees to clean up such spills or leaks to the satisfaction of the Government and in a manner that complies with applicable federal, state, and local laws and regulations. The clean up shall be at no cost to the Government.

(b) The Contractor shall report all such spills or leaks, regardless of their quantity, to the Contracting Officer immediately upon discovery. A written follow-up report shall be submitted to the Contracting Officer not later than 24 hours after the initial telephonic report. The written report shall be in narrative form and as a minimum include the following:

- (1) Description of item spilled (including identity, quantity, manifest no., etc).
- (2) Whether amount spilled is EPA/state reportable, and if so whether it was reported.
- (3) Exact time and location of spill including a description of the area involved.
- (4) Containment procedures initiated.
- (5) Summary of any communications contractor has with press or Government officials other than Contracting Officer. (Contractor's initial response will be in accordance with R.4)
- (6) Description of clean-up procedures employed or to be employed at the site including disposal location of spill residue.

() C.7 SAFETY

The Contractor must perform all operations in a prudent, conscientious, safe and professional manner. At a minimum, Contractor's personnel and equipment shall comply with applicable state, federal, local and installation laws, safety regulations and procedures, and Contractor will ensure that its agents, employees, and subcontractors perform in a safe manner. The Contractor shall ensure that all personnel involved in handling and packaging the hazardous waste be trained for the level of expertise required for the proper performance of the task and, in particular, in the areas of chemical incompatibility, general first aid procedures and spills. Handling and personnel protective equipment shall be provided by the Contractor and must be appropriate to ensure safe handling of the hazardous waste. The Contractor agrees that his personnel and equipment are subject to safety inspections by Government personnel while on Federal property.

C.8 SAFETY REQUIREMENTS (PCBs)

Contractor personnel and equipment shall comply with all safety requirements set forth in applicable state, federal and local laws and regulations. Further, such equipment must be appropriate to ensure the safe handling and disposition of the material identified in the bid schedule. The Contractor is responsible to ensure that his agents, employees or subcontractors perform the work in a safe manner. The Contractor agrees that his personnel and equipment are subject to safety inspection by Government personnel while on Federal property. The Contractor shall ensure that all personnel involved in the handling, repackaging, and transporting of the material listed herein shall be trained in the areas of spills, burns and general first aid procedures.

C.9 NOTIFICATIONS

Except as may otherwise be specified herein, the Contractor shall notify the Contracting Officer's Representative (COR) for each location, at least Five (5) calendar days BEFORE attempting site visits, analysis or pickups.

C.10 PERMITS

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any applicable federal, state and local laws, codes, and regulations in connection with the prosecution of the work. This includes acquiring any required permits or registration necessary to operate on any installation listed in this contract.

C.11 REPORTS

(a) DEMS Form 1786 and DEMS Form 1668. A Pickup Report (DEMS Form 1786 for Non-PCB items or DEMS Form 1668 for PCB items) shall be completed by the Contractor at the time of each pick-up and shall accompany each shipment. Completed copies are to be furnished to the Contracting Officer and the Defense Identification & Marking Office attached. Blank forms will be provided by the Government upon request. All waste picked up shall be listed on the DEMS Form 1786 or DEMS Form 1668 and shall reference the contract line item number as shown in Section B of this contract. For those POS generated removals, the completed Order For Supplies or Services (DD 155) will be submitted instead of DEMS Form 1786 or DEMS Form 1668.

(b) DEMS Form 1683. Certificate of Disposal (DEMS Form 1683). The Contractor shall prepare the Certificate of Disposal attached. This certificate is to be submitted with the invoices. Any differences between the contract inventory and what was actually picked up or disposed of must be thoroughly described and documented. Use attachments to the certificate of disposal if necessary.

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C.13 (Continued)

(c) Mere acceptance of CLINs identified in Part I of the schedule at a properly permitted treatment, storage, or disposal facility (TSDF) does not meet the definition of final treatment/disposal under this contract. Acceptance of CLINs identified in Part II of the schedule at a properly approved/permitted/licensed treatment or disposal facility does meet the definition of final treatment/disposal under this contract. It is the prime Contractor's responsibility to obtain all necessary documentation to prove that the final treatment/disposal of all items has been accomplished. This documentation shall be attached to the certification of disposal and submitted with, or prior to the invoices.

~~C~~ C.14 MANIFESTING

(a) A uniform hazardous waste manifest is required for the removal from Government premises of all items on this contract. The Contractor shall obtain and prepare all manifests. The pickup manifests will be reviewed and signed by the appropriate Government official. Completed copies of all manifests shall be furnished the Defense Reutilization & Marketing Office whose address appears on the manifests, as well as submitted as attachments to all invoices. Manifests shall be submitted in such a manner as to comply with the timeliness prescribed by the state and EPA regulations.

(b) Each manifest, as well as all other documentation required herein shall be clearly and distinctly marked with the contract number and delivery order number as applicable. If blocks are not provided, the contract and delivery order information shall be placed in the upper right hand corner of each document.

() C.15 SHIPPING DOCUMENTATION

(a) A uniform hazardous waste manifest is required for the removal from Government premises of all CLIN(s) listed in Part I of the bid schedule (Sect B). The Contractor shall obtain and prepare all manifests. The pickup manifests will be reviewed and signed by the appropriate Government official. Completed copies of all manifests shall be furnished the Defense Reutilization & Marketing Office whose address appears on the manifests, as well as submitted as attachments to all invoices. Manifests shall be submitted in such a manner as to comply with the timeliness prescribed by the state and EPA regulations. Each manifest, as well as all other documentation required herein shall be clearly and distinctly marked with the contract number and delivery order as applicable. If blocks are not provided, the contract and delivery order information shall be placed in the upper right hand corner of each document.

(b) CLIN(s) identified in Part II of the bid schedule (Sect B) must be transported in accordance with DOT requirements. This includes the requirements that all hazardous materials offered for transportation be properly described on a bill of lading. The Contractor shall obtain and prepare all bills of lading. Completed copies of all bills of lading shall be furnished to the Defense Reutilization & Marketing Office whose address appears on the bill of lading, as well as submitted as attachments to all invoices. Each bill of lading required herein shall be marked with the contract number and delivery order number as applicable.

(X) C.18 SEGREGATION OF HAZARDOUS WASTE

All items collected on this contract must be segregated and kept physically separate from any other items until the initial TSDR is reached. The items must be so marked, that they are readily identified to this contract throughout this period. In addition, the Contractor must ensure that there is a clear audit trail for all items until final treatment/disposal is accomplished.

(X) C.19 STATEMENT ON CONTAINERS

The Government does not warrant that the drums or containers are suitable for transportation in accordance with Department of Transportation regulations. The offeror is cautioned to ascertain and assess the need for overpacking or recontainerizing based on the site visit.

(X) C.20 GOVERNMENT EQUIPMENT AND PERSONNEL

The Government shall not furnish any equipment or personnel to assist the Contractor in the performance of the Contractor's responsibilities under the contract. The Contractor understands that any such offers of assistance are unauthorized, and the Contractor shall not accept any such offers.

(X) C.21 WASTE ANALYSIS SHEETS

The Contractor shall prepare all Waste Analysis Sheets identified to a specific contract line item that may be required for disposal, and provide two copies to the Contracting Officer's Representative(s) (COR).

(X) C.22 DETAILED ANALYSIS

If the Contractor must perform detailed analysis for disposal, copies of the results identified to a specific contract line item shall be provided to the Contracting Officer's Representative(s) (COR). Any detailed analysis must comply with all Federal, state and local requirements.

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☒ C.24 TREATMENT OF HAZARDOUS WASTE ON GOVERNMENT FACILITY

Treatment of hazardous waste (including solidification) on Government facilities is not permitted.

Treatment is defined as any process which meets the definition of treatment as set forth in applicable federal (including 48 CFR 268.18) state and local laws and regulations.

☐ C.25 LITHIUM - SULFUR - DIOXIDE BATTERIES

The USEPA issued a Regulatory Interpretive Letter (RIL) on 19 March 1984, in which the agency concluded that lithium-sulfur dioxide batteries exhibit the characteristics of reactivity as defined in 48 CFR 261.33 and that handlers of these batteries must, therefore, comply with the requirements under 48 CFR Parts 124, 262 to 266, 270, and 271. Under these standards, the land disposal of regulated quantities of reactive wastes is prohibited unless the waste is treated or otherwise rendered non-hazardous (48 CFR 264.312, 265.312).

☐ C.26 RESERVED

☐ C.27 RESERVED

✂ C.28 LAND DISPOSAL IN TEXAS

The Contractor shall perform all dry weight computations for those hazardous wastes destined for land disposal in Texas and shall provide all such computations to the Contracting Officer's Representative (COR) for record keeping purposes. This computation shall be furnished along with the copy of the generator manifest.

✂ C.29 HOURS OF OPERATION

The Contractor agrees that, for those portions of the services provided on a government installation, the services will be provided during the normal hours of operations for the installation. The normal hours of operations for installations on this contract are available, upon request, from the COR.

() C.30 TANKER TRUCK

These wastes are contained in various type containers and may require pickup by tanker truck equipped with a heavy duty vacuum pump. The contractor must have a means of verifying the actual quantity picked up. The actual quantity picked up must be identified on the manifest.

() C.31 PART I VS PART II CLINS

Part I CLINs, 0001 thru 5999 have been declared hazardous waste by the Government and are subject to stricter disposal requirements than the CLINs in Part II, CLINs 6000 thru 6500.

Part II CLINs are neither RCRA nor state regulated hazardous waste and will be subject to less stringent requirements than the hazardous waste CLINs in Part I.

If the Contractor demonstrates through lab analysis and/or other supporting documentation that a CLIN(s) identified under Part I is not a RCRA/state regulated hazardous waste, the Government may so reclassify the item and place it under Part II. The Government will review the lab analysis and other supporting documentation in a reasonable time period; however, the items in question will be treated as a hazardous waste in the interim and removal time frames must be met.

If the Contractor demonstrates through lab analysis and/or other supporting documentation that a CLIN(s) identified under Part II is a RCRA/state regulated hazardous waste, the Government may reclassify the item under Part I. The Contractor's claim that a CLIN identified under Part II is actually a hazardous waste which should be identified under Part I shall be treated as potential misidentification by the Government. The CLIN(s) in question shall not be removed, treated or disposed of until the Government has made a determination on the matter. Reclassification of items from Part I to Part II, or from Part II to Part I shall fall under the "Changes" clause of this contract.

Any Part I CLIN which is a state regulated hazardous waste only (not a RCRA waste) may be taken to a non RCRA facility approved by the state for that specific state regulated hazardous waste if prior approval is obtained from DPM in accordance with Clause 4.11.

C.33 LOADING

(a) Except for the pickup locations listed in Government Loading Table below, the Contractor is responsible for loading, including furnishing all the equipment necessary for loading.

(b) Unless otherwise provided in the contract, loading will not be performed on Saturdays, Sundays, Federal holidays, or any day that the installation where the items are located is closed. Where it is provided that the Government will load, the Government will make the initial placement of the items on conveyance(s) furnished by the Contractor and the initial placement on the Contractor's conveyance shall be as determined by the Government. Unless otherwise provided in the contract, the Government will not block, chock, brace, lash, band, or in any other manner secure the cargo on such conveyance(s) furnished by the Contractor.

(c) At the pickup locations listed in following Government Loading Table the Government is responsible for loading the items listed. The following loading legend is used in the table.

LOADING LEGEND

- I - Government will load
 - (a) Rail
 - (b) Truck or Trailer
- II - Government will load - open top conveyance only
 - (a) Rail
 - (b) Truck or Trailer
- III - Other

GOVERNMENT LOADING TABLE

<u>ITEM(S)</u>	<u>LOCATION</u>	<u>LOADING LEGEND</u>
	- NONE -	

✕ C.34 WEIGHING OF PROPERTY

The Contractor shall weigh all property before removal. An authorized Government representative will witness all weighing.

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(a) Bulk Items

(1) Bulk items will be measured by one of the following methods. The method used will be whichever is most accurate and agreed upon by the Contractor and the Government representative.

(i) Actual weight using Government scales.

(ii) Actual weight using commercial scales.

(iii) Calculated weight. As an alternative to actual weighing, the weight of bulk shipments may be computed, provided that the specific gravity of the material is known and the volume actually picked up is determined. For example, 2,000 gallons of liquid with a specific gravity of 1.4 = calculated weight of 23,344 pounds. ($2,000 \times 1.4 \times 8.337$, where one gallon of water weighs 8.337 pounds). Specific gravity will be obtained from a waste profile sheet.

(2) For either "actual weight" method, the vehicle will be weighed both before and after loading. For bulk shipments, where Government scales are not available or operable, the use of commercial scales is authorized. The Contractor will arrange for and incur all expenses of weighing property at the nearest certified public scale.

(b) Non-bulk Items

(1) For non-bulk items, the Contractor shall provide portable scales for out-weighing of property. Portable scales must have a minimum capacity of 1,500 pounds. For the purpose of this contract, scales permanently affixed or built into a vehicle are considered portable scales.

(2) Prior to the use of portable scales at each pickup site, the Contractor must demonstrate reasonable weight accuracy to the Government representative. Only materials to be removed by the Contractor will be weighed. Pallets, boxes, strapping, etc., which are not integral parts of the packaging and are not being removed by the Contractor will not be included in the weight.

(3) Government scales may be used, in lieu of scales provided by the Contractor, only where they are available, operable, and authorized by the Government representative. The Contractor shall be responsible for determining the availability of Government scales. The Government makes no guarantee that where Government scales are available, they are operable. At the Government's option, the use of Government scales will be allowed at the following sites:

- NONE -

(4) The use of commercial scales is not authorized for non-bulk items.

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∞ C.35 TANKER TRUCK

These wastes are contained in various types of containers. Pickup by tanker truck equipped with a heavy duty vacuum pump and a metering device may be required for some material. The actual weight of the material picked up must be identified on the manifest.

() C.36 SMALL CONTAINERS AND CONTENTS

Small container(s) with a capacity of less than seven (7) pounds are defined separately under CLINs 0002, 1652, 2001, 2301, 2801, 3101, 3401, 3701, 3901, 4201, 4501, 5001, 5601, 6001.

Packaging requirements for transportation/disposal are left to the discretion of the Contractor. The packaging for transportation/disposal must be in accordance with all federal, state and local requirements. If the Contractor elects to package compatible items in the same container it must provide a comprehensive list of each item and quantity (of each) placed in the container. This list must be attached to the manifest. However, overpack materials other than Government - furnished outer containers will not be included in the weight for payment purposes.

() C.37 ACCEPTANCE OF DISPOSAL SERVICES INVOLVING FUEL BLENDING

DRMS acceptance of disposal services involving fuels blending is designed to encourage fuels blending as described at 40 CFR 266. It does not apply to blending for destructive incineration. Component fuels of the final blended product must adhere to EPA enforcement guidance at FR Vol. 48, No. 52, 11157-11160. The following additional criteria apply:

(a) The fuel blending facility must provide a certification to the ACO for each DRMS disposal contract affected, signed by a responsible official of the facility, which:

(1) Specifies maximum processing time that property would remain in the fuel blending tank farm and guarantee that the fuel blended product will not remain in storage longer than the certified processing time.

(2) Identifies by name, address and EPA ID number all facilities which received the fuel blended products for energy recovery, per 40 CFR 266, subparts D and E.

(3) Identifies by name, address and EPA ID number all facilities which received the incidental solids, still bottoms, and/or sludges remaining after fuels blending which require destructive incineration per 40 CFR 264 and 265 subpart O.

(4) Guarantees that the fuel blended product will not be shipped out of the United States.

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C.37 (Cont'd)

(b) DRMS prime Contractors must obtain DRMS approval prior to the use of any incinerator that receives material in paragraphs C.37 (a)(2) and (3) above. In addition, these facilities must meet the criteria outlined at clause M.6.(c) or M.9.(c), as applicable, of the solicitation. Use of these facilities must be on a contract-by-contract basis. Use of such facilities without prior DRMS approval will result in the rejection of the blender's certification and reversion to the standard tracking system, consisting of a manifest to the fuel blending facility, a manifest from the fuel blending facility to an incinerator and a certificate of destruction issued by the facility.

(c) DRMS will certify acceptance of disposal services only after acceptance of the blender's certification and expiration of the period discussed in (a)(1) above, following manifested receipt by the fuel blending facility.

(d) Any inconsistency between this provision and C.12 or C.13 shall be resolved by giving precedence to this provision.

(X) C.38 RETROGRADES

The Contractor agrees to pickup and remove retrograded property from (port) (*See Below). A retrograde is defined as the return of U.S. made and procured property from an overseas U.S. military location. The Contractor will receive a delivery order listing all of the property in the shipment a minimum of thirty days in advance of the date the shipment is scheduled to arrive in CONUS at the port indicated. The Contractor will be provided with the following: carrier(s) name, carrier(s) point of contact, shipping information and estimated arrival date/time. The Contractor will be required equipment required for pickup. The Contractor must remove the arriving property from the port of entry (POE) within ninety-six hours once the property is available for removal. It is the Contractor's responsibility to coordinate with the carrier(s) and POE to determine the availability of property as to time and date or changes in carrier(s) or POE in order to meet the removal time frame.

*Area 3 - Ogdensburg Port Authority, Ogdensburg, NY

*Area 6 - Camp Allen, Norfolk, VA
TMT Lines, Jacksonville, FL

ORIGINAL
(Red)C.41. REPORTS

(a) DRMS Form 1786 and DRMS 1668. A Pickup Report (DRMS Form 1786 for Non-PCB items or DRMS Form 1668 for PCB items) shall be completed by the Contractor at the time of each pick-up and shall accompany each shipment. Completed copies are to be furnished to the Contracting Officer in accordance with clause G.9 and the Defense Reutilization & Marketing Office affected. Blank forms will be provided by the Government upon request. All waste picked up shall be listed on the DRMS Form 1786 or DRMS Form 1668 and shall reference the contract line item number as shown in Section B of this contract. For those 3035 generated removals, the completed Order For Supplies or Services (DD 1155) will be submitted instead of DRMS Form 1786 or DRMS Form 1668.

(b) DRMS Form 1683. Certificate of Disposal (DRMS Form 1683). The Contractor shall prepare the Certificate of Disposal attached. This certificate is to be submitted prior to the invoice in accordance with clause G.9. Any differences between the contract inventory and what was actually picked up or disposed of must be thoroughly described and documented. Use attachments to the certificate of disposal if necessary.

(c) DD Form 1155, ORDER FORM FOR SUPPLIES OR SERVICES. The Contractor shall annotate a copy of the DD Form 1155 including any applicable continuation sheets and applicable pages from modifications to show only those lines being submitted for acceptance. These documents are to be submitted prior to the invoices as described in clause G.9.

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D.0 SECTION D - PACKAGING AND MARKING

~~D.0~~ D.1 PACKAGING, MARKING AND LABELING DHS (APR 1984)

The Contractor shall package, mark, label and load all items in such a manner that all applicable federal, state and local EPA and DOT regulations are met. If items must be repackaged for proper shipment the Contractor shall perform such repackaging and furnish all required materials. When repackaging is necessary, the Contractor shall be responsible for disposal of the original container and packaging in a manner that complies with all applicable federal, state and local EPA and DOT regulations. The Contractor shall also provide and affix the appropriate placards to each vehicle prior to leaving Government premises.

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APPENDIX H
DLA RCRA Disposal Contract

RCRA waste2

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C.O SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

() C.2 STATEMENT OF WORK

The Contractor agrees to provide all services necessary for the final treatment/disposal of the hazardous waste listed in the schedule in accordance with all local, state, and federal EPA solid and hazardous waste laws and regulations, specifically Resource Conservation and Recovery Act (RCRA); and all the terms and conditions of this contract. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, including manifesting or completing waste profile sheets) equipment, and the compilation and submission of all documentation required by the clause at G.3, G.8, or G.9, below. All items listed in the schedule, regardless of their condition, are being discarded by the Government and are considered to be hazardous waste.

(X) C.3 STATEMENT OF WORK

The Contractor agrees to provide all services necessary for the final treatment/disposal of the hazardous waste listed in the schedule in accordance with all local, state, and federal laws, and regulations, and the terms and conditions of this contract. These services shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation including manifesting or completing waste profile sheets) equipment and the compilation and submission of all documentation required by the clause at G.3, G.8, or G.9, below. All items listed in Part I of the schedule, CLINS 0001 thru 5999, regardless of their condition, are being discarded by the Government and are considered to be hazardous waste. Items listed in Part II of the schedule, CLINS 6000 thru 6500, are not considered to be Resource Conservation and Recovery Act/state regulated hazardous waste.

() C.4 PROCESSING (PCBs)

Contractor shall not drain and/or flush PCB items at Government installations. Draining will be allowed only to prevent leaking and to meet Department of Transportation Regulations.

(X) C.5 DEPARTMENT OF TRANSPORTATION REQUIREMENTS

The Contractor agrees that transportation shall be in accordance with DOT Hazardous Material Regulations 49 CFR 100-199. The Contractor shall also comply with state and local requirements including obtaining all necessary permits, licenses, and approvals. Contractor shall show Contracting Officer's Representative evidence of being a licensed Hazardous Waste Transporter prior to loading of any materials.

Effective 17 September 1990, transporters are required to carry emergency response information in a location away from the package(s) containing the hazardous materials. This requirement shall be met by carrying a copy of the DOT Emergency Response Guidebook (DOT p. 5800.4). Contractor will ensure that the appropriate guide page from the guidebook is referenced on the manifest for each hazardous material.

ORIGINAL
(Red)(X) C.6 SPILL RESPONSIBILITY

(a) The Contractor is solely responsible for any and all spills or leaks during the performance of this contract which occur as a result of or are contributed to by the actions of its agents, employees, or subcontractors. The Contractor agrees to clean up such spills or leaks to the satisfaction of the Government and in a manner that complies with applicable federal, state, and local laws and regulations. The clean up shall be at no cost to the Government.

(b) The Contractor shall report all such spills or leaks, regardless of their quantity, to the Contracting Officer immediately upon discovery. A written follow-up report shall be submitted to the Contracting Officer not later than 24 hours after the initial telephonic report. The written report shall be in narrative form and as a minimum include the following:

(1) Description of item spilled (including identity, quantity, manifest no., etc).

(2) Whether amount spilled is EPA/state reportable, and if so whether it was reported.

(3) Exact time and location of spill including a description of the area involved.

(4) Containment procedures initiated.

(5) Summary of any communications contractor has with press or Government officials other than Contracting Officer. (Contractor's initial response will be in accordance with H.4)

(6) Description of clean-up procedures employed or to be employed at the site including disposal location of spill residue.

(X) C.7 SAFETY

The Contractor must perform all operations in a prudent, conscientious, safe and professional manner. At a minimum, Contractor's personnel and equipment shall comply with applicable state, federal, local and installation laws, safety regulations and procedures, and Contractor will ensure that its agents, employees, and subcontractors perform in a safe manner. The Contractor shall ensure that all personnel involved in handling and packaging the hazardous waste be trained for the level of expertise required for the proper performance of the task and, in particular, in the areas of chemical incompatibility, general first aid procedures and spills. Handling and personnel protective equipment shall be provided by the Contractor and must be appropriate to ensure safe handling of the hazardous waste. The Contractor agrees that his personnel and equipment are subject to safety inspections by Government personnel while on Federal property.

ORIGINAL
(Red)() C.8 SAFETY REQUIREMENTS (PCBs)

Contractor personnel and equipment shall comply with all safety requirements set forth in applicable state, federal and local laws and regulations. Further, such equipment must be appropriate to ensure the safe handling and disposition of the material identified in the bid schedule. The Contractor is responsible to ensure that his agents, employees or subcontractors perform the work in a safe manner. The Contractor agrees that his personnel and equipment are subject to safety inspection by Government personnel while on Federal property. The Contractor shall ensure that all personnel involved in the handling, repackaging, and transporting of the material listed herein shall be trained in the areas of spills, burns and general first aid procedures.

(X) C.9 NOTIFICATIONS

Except as may otherwise be specified herein, the Contractor shall notify the Contracting Officer's Representative (COR) for each location, at least five (5) calendar days BEFORE attempting site visits, analysis or pickups.

(X) C.10 PERMITS

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any applicable federal, state and local laws, codes, and regulations in connection with the prosecution of the work. This includes acquiring any required permits or registration necessary to operate on any installation listed in this contract.

() C.11 REPORTS

(a) DRMS Form 1786 and DRMS Form 1668. A Pickup Report (DRMS Form 1786 for Non-PCB items or DRMS Form 1668 for PCB items) shall be completed by the Contractor at the time of each pick-up and shall accompany each shipment. Completed copies are to be furnished to the Contracting Officer and the Defense Reutilization & Marketing Office affected. Blank forms will be provided by the Government upon request. All waste picked up shall be listed on the DRMS Form 1786 or DRMS Form 1668 and shall reference the contract line item number as shown in Section B of this contract. For those SOSS generated removals, the completed Order For Supplies or Services (DD 1155) will be submitted instead of DRMS Form 1786 or DRMS Form 1668.

(b) DRMS Form 1683. Certificate of Disposal (DRMS Form 1683). The Contractor shall prepare the Certificate of Disposal attached. This certificate is to be submitted with the invoices. Any differences between the contract inventory and what was actually picked up or disposed of must be thoroughly described and documented. Use attachments to the certificate of disposal if necessary.

ORIGINAL
(Red)() C.12 DEFINITION OF FINAL TREATMENT/DISPOSAL

(a) For purposes of this contract final treatment/disposal means either: treatment so that such wastes no longer meet the definition of a hazardous waste as defined in 40 CFR 261 et. seq.; or disposal of a waste by a RCRA handling method specified in 40 CFR Parts 264/265 appendix 1, Table 2, paragraphs 2 and 3. Waste handling codes that describe methods of storage do not meet the definition of final treatment/disposal under this contract. Interim treatment of the waste such that the waste still meets the definition of a hazardous waste as defined in 40 CFR 261 et. seq. does not meet the definition of final treatment/disposal under this contract. All facilities used for interim treatment or final treatment/disposal of items on this contract shall have as a minimum, an EPA/state approved interim status permit showing EPA hazardous waste numbers for each waste the facility is permitted to handle, as described at 40 CFR 261 subparts c and d.

(b) Mere acceptance of the hazardous waste at a properly permitted treatment, storage, or disposal facility (TSDF) does not meet the definition of final treatment/disposal under this contract. It is the prime Contractor's responsibility to obtain all necessary documentation to prove that the final treatment/disposal of all items (as defined in paragraph a. above) has been accomplished. This documentation shall be attached to the certificate of disposal and submitted with, or prior to, the invoices.

(X) C.13 DEFINITION OF FINAL TREATMENT/DISPOSAL

(a) For CLINs identified in Part I of the bid schedule (Sect B), CLINs 0001 thru 5999, final treatment/disposal means either: treatment so that such wastes no longer meet the definition of a hazardous waste as defined in 40 CFR 261 et. seq.; or disposal of a waste by a RCRA handling method specified in 40 CFR Parts 264/265 appendix 1, Table 2, paragraphs 2 and 3. Waste handling codes that describe methods of storage do not meet the definition of final treatment/disposal under this contract. Interim treatment of the waste such that the waste still meets the definition of a hazardous waste as defined in 40 CFR 261 et. seq., does not meet the definition of final treatment/disposal under this contract. All facilities used for interim treatment or final treatment/disposal of CLINs identified in Part I of the schedule shall have as a minimum, an EPA/state approved interim status permit showing EPA hazardous waste numbers for each waste the facility is permitted to handle, as described at 40 CFR 261 subparts c and d.

(b) For CLINs identified in Part II of the bid schedule (Sect B), CLINs 6000 thru 6500, final treatment/disposal means either: the long term interment (burial) in a facility approved for such by the appropriate state and/or federal agency; or processing at a facility that is appropriately licensed/permited by local and/or state agency to accept the material. If long term interment is the selected method of disposal, as a minimum, an EPA/state permitted class 2 disposal facility must be used. Additionally, facilities that are recycling property must have an EPA generator's identification number.

C.13 (Continued)

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(c) Here acceptance of CLINs identified in Part I of the schedule at a properly permitted treatment, storage, or disposal facility (TSDF) does not meet the definition of final treatment/disposal under this contract. Acceptance of CLINs identified in Part II of the schedule at a properly approved/permited/licensed treatment or disposal facility does meet the definition of final treatment/disposal under this contract. It is the prime Contractor's responsibility to obtain all necessary documentation to prove that the final treatment/disposal of all items has been accomplished. This documentation shall be attached to the certification of disposal and submitted with, or prior to the invoices.

() G.14 MANIFESTING

(a) A uniform hazardous waste manifest is required for the removal from Government premises of all items on this contract. The Contractor shall obtain and prepare all manifests. The pickup manifests will be reviewed and signed by the appropriate Government official. Completed copies of all manifests shall be furnished the Defense Reutilization & Marketing Office whose address appears on the manifests, as well as submitted as attachments to all invoices. Manifests shall be submitted in such a manner as to comply with the timeliness prescribed by the state and EPA regulations.

(b) Each manifest, as well as all other documentation required herein shall be clearly and distinctly marked with the contract number and delivery order number as applicable. If blocks are not provided, the contract and delivery order information shall be placed in the upper right hand corner of each document.

(X) G.15 SHIPPING DOCUMENTATION

(a) A uniform hazardous waste manifest is required for the removal from Government premises of all CLIN(s) listed in Part I of the bid schedule (Sect B). The Contractor shall obtain and prepare all manifests. The pickup manifests will be reviewed and signed by the appropriate Government official. Completed copies of all manifests shall be furnished the Defense Reutilization & Marketing Office whose address appears on the manifests, as well as submitted as attachments to all invoices. Manifests shall be submitted in such a manner as to comply with the timeliness prescribed by the state and EPA regulations. Each manifest, as well as all other documentation required herein shall be clearly and distinctly marked with the contract number and delivery order as applicable. If blocks are not provided, the contract and delivery order information shall be placed in the upper right hand corner of each document.

(b) CLIN(s) identified in Part II of the bid schedule (Sect B) must be transported in accordance with DOT requirements. This includes the requirements that all hazardous materials offered for transportation be properly described on a bill of lading. The Contractor shall obtain and prepare all bills of lading. Completed copies of all bills of lading shall be furnished to the Defense Reutilization & Marketing Office whose address appears on the bill of lading, as well as submitted as attachments to all invoices. Each bill of lading required herein shall be marked with the contract number and delivery order number as applicable.

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(X) C.18 SEGREGATION OF HAZARDOUS WASTE

All items collected on this contract must be segregated and kept physically separate from any other items until the initial TSDP is reached. The items must be so marked, that they are readily identified to this contract throughout this period. In addition, the Contractor must ensure that there is a clear audit trail for all items until final treatment/disposal is accomplished.

(X) C.19 STATEMENT ON CONTAINERS

The Government does not warrant that the drums or containers are suitable for transportation in accordance with Department of Transportation regulations. The offeror is cautioned to ascertain and assess the need for overpacking or recontainerizing based on the site visit.

(X) C.20 GOVERNMENT EQUIPMENT AND PERSONNEL

The Government shall not furnish any equipment or personnel to assist the Contractor in the performance of the Contractor's responsibilities under the contract. The Contractor understands that any such offers of assistance are unauthorized, and the Contractor shall not accept any such offers.

(X) C.21 WASTE ANALYSIS SHEETS

The Contractor shall prepare all Waste Analysis Sheets identified to a specific contract line item that may be required for disposal, and provide two copies to the Contracting Officer's Representative(s) (COR).

(X) C.22 DETAILED ANALYSIS

If the Contractor must perform detailed analysis for disposal, copies of the results identified to a specific contract line item shall be provided to the Contracting Officer's Representative(s) (COR). Any detailed analysis must comply with all Federal, state and local requirements.

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(X) C.24 TREATMENT OF HAZARDOUS WASTE ON GOVERNMENT FACILITY

Treatment of hazardous waste (including solidification) on Government facilities is not permitted.

Treatment is defined as any process which meets the definition of treatment as set forth in applicable federal (including 48 CFR 248.18) state and local laws and regulations.

(X) C.25 LITHIUM - SULFUR - DIOXIDE BATTERIES

The USEPA issued a Regulatory Interpretive Letter (RIL) on 19 March 1984, in which the agency concluded that lithium-sulfur dioxide batteries exhibit the characteristics of reactivity as defined in 48 CFR 261.33 and that handlers of these batteries must, therefore, comply with the requirements under 48 CFR Parts 124, 262 to 266, 270, and 271. Under these standards, the land disposal of regulated quantities of reactive wastes is prohibited unless the waste is treated or otherwise rendered non-hazardous (48 CFR 264.312, 265.312).

() C.26 RESERVED

() C.27 RESERVED

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(X) C.28 LAND DISPOSAL IN TEXAS

The Contractor shall perform all dry weight computations for those hazardous wastes destined for land disposal in Texas and shall provide all such computations to the Contracting Officer's Representative (COR) for record keeping purposes. This computation shall be furnished along with the copy of the generator manifest.

(X) C.29 HOURS OF OPERATION

The Contractor agrees that, for those portions of the services provided on a government installation, the services will be provided during the normal hours of operations for the installation. The normal hours of operations for installations on this contract are available, upon request, from the COR.

() C.30 TANKER TRUCK

These wastes are contained in various type containers and may require pickup by tanker truck equipped with a heavy duty vacuum pump. The contractor must have a means of verifying the actual quantity picked up. The actual quantity picked up must be identified on the manifest.

(X) C.31 PART I vs PART II CLINS

Part I CLINS, 0001 thru 5999 have been declared hazardous waste by the Government and are subject to stricter disposal requirements than the CLINS in Part II, CLINS 6000 thru 6500.

Part II CLINS are neither RCRA nor state regulated hazardous waste and will be subject to less stringent requirements than the hazardous waste CLINS in Part I.

If the Contractor demonstrates through lab analysis and/or other supporting documentation that a CLIN(s) identified under Part I is not a RCRA/state regulated hazardous waste, the Government may so reclassify the item and place it under Part II. The Government will review the lab analysis and other supporting documentation in a reasonable time period; however, the items in question will be treated as a hazardous waste in the interim and removal time frames must be met.

If the Contractor demonstrates through lab analysis and/or other supporting documentation that a CLIN(s) identified under Part II is a RCRA/state regulated hazardous waste, the Government may reclassify the item under Part I. The Contractor's claim that a CLIN identified under Part II is actually a hazardous waste which should be identified under Part I shall be treated as potential misidentification by the Government. The CLIN(s) in question shall not be removed, treated or disposed of until the Government has made a determination on the matter. Reclassification of items from Part I to Part II, or from Part II to Part I shall fall under the "Changes" clause of this contract.

Any Part I CLIN which is a state regulated hazardous waste only (not a RCRA waste) may be taken to a non RCRA facility approved by the state for that specific state regulated hazardous waste if prior approval is obtained from DRMS in accordance with Clause H.22.

X C.32 NON-RCRA - STATE REGULATED WASTE

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The CLINs listed below are usually non-RCRA, non State Regulated waste. However, these CLINs may be regulated in certain states. If these items are regulated in the state where they are located, then they will be ordered under the appropriate PART I CLIN (CLINs 0001-5999). If these items are not regulated in the state where they are located, then they will be ordered under the appropriate PART II CLIN (6000-6500). For informational purposes only, the following CLINs are known to be regulated in the following states. The Government does not guarantee that these are the only states these CLINs are regulated or that these are the only CLINs that are state regulated.

<u>STATE</u>	<u>CLINS</u>
CA	6006, 6007, 6008, 6017, 6023, 6024, 6025, 6026, 6033, 6049, 6050, 6051, 6052, 6055, 6056, 6059, 6062, 6070, 6071, 6073, 6082, 6089, 6090, 6093, 6100, 6107
WA	6009, 6010, 6015, 6016, 6018, 6033, 6042, 6049, 6050, 6051, 6052, 6061, 6068

(X) C.33 LOADINGORIGINAL
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(a) Except for the pickup locations listed in Government Loading Table below, the Contractor is responsible for loading, including furnishing all the equipment necessary for loading.

(b) Unless otherwise provided in the contract, loading will not be performed on Saturdays, Sundays, Federal holidays, or any day that the installation where the items are located is closed. Where it is provided that the Government will load, the Government will make the initial placement of the item on conveyance(s) furnished by the Contractor and the initial placement on the Contractor's conveyance shall be as determined by the Government. Unless otherwise provided in the contract, the Government will not block, check, brace, lash, band, or in any other manner secure the cargo on such conveyance(s) furnished by the Contractor.

(c) At the pickup locations listed in following Government Loading Table the Government is responsible for loading the items listed. The following loading legend is used in the table.

LOADING LEGEND

I - Government will load

(a) Rail

(b) Truck or Trailer

II - Government will load - open top conveyance only

(a) Rail

(b) Truck or Trailer

III - Other

GOVERNMENT LOADING TABLE

<u>ITEM(S)</u>	<u>LOCATION</u>	<u>LOADING LEGEND</u>
	NONE	

(X) C.34 WEIGHING OF PROPERTY

The Contractor shall weigh all property before removal. An authorized Government representative will witness all weighing.

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(a) Bulk Items

(1) Bulk items will be measured by one of the following methods. The method used will be whichever is most accurate and agreed upon by the Contractor and the Government representative.

(i) Actual weight using Government scales.

(ii) Actual weight using commercial scales.

(iii) Calculated weight. As an alternative to actual weighing, the weight of bulk shipments may be computed, provided that the specific gravity of the material is known and the volume actually picked up is determined. For example, 2,000 gallons of liquid with a specific gravity of 1.4 = calculated weight of 23,344 pounds. ($2,000 \times 1.4 \times 8.337$, where one gallon of water weighs 8.337 pounds). Specific gravity will be obtained from a waste profile sheet.

(2) For either "actual weight" method, the vehicle will be weighed both before and after loading. For bulk shipments, where Government scales are not available or operable, the use of commercial scales is authorized. The Contractor will arrange for and incur all expenses of weighing property at the nearest certified public scale.

(b) Non-bulk Items

(1) For non-bulk items, the Contractor shall provide portable scales for outweighing of property. Portable scales must have a minimum capacity of 1,500 pounds. For the purpose of this contract, scales permanently affixed or built into a vehicle are considered portable scales.

(2) Prior to the use of portable scales at each pickup site, the Contractor must demonstrate reasonable weight accuracy to the Government representative. Only materials to be removed by the Contractor will be weighed. Pallets, boxes, strapping, etc., which are not integral parts of the packaging and are not being removed by the Contractor will not be included in the weight.

(3) Government scales may be used, in lieu of scales provided by the Contractor, only where they are available, operable, and authorized by the Government representative. The Contractor shall be responsible for determining the availability of Government scales. The Government makes no guarantee that where Government scales are available, they are operable. At the Government's option, the use of Government scales will be allowed at the following sites:

None

(4) The use of commercial scales is not authorized for non-bulk items.

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ORIGINAL
(Red)(X) C.35 TANKER TRUCK

These wastes are contained in various types of containers. Pickup by tanker truck equipped with a heavy duty vacuum pump and a metering device may be required for some material. The actual weight of the material picked up must be identified on the manifest.

(X) C.36 SMALL CONTAINERS AND CONTENTS

Small container(s) with a capacity of less than seven (7) pounds are defined separately under CLINs 0002, 1652, 2001, 2301, 2801, 3101, 3401, 3701, 3901, 4201, 4301, 5001, 5601, 6001.

Packaging requirements for transportation/disposal are left to the discretion of the Contractor. The packaging for transportation/disposal must be in accordance with all federal, state and local requirements. If the Contractor elects to package compatible items in the same container it must provide a comprehensive list of each item and quantity (of each) placed in the container. This list must be attached to the manifest. However, overpack materials other than Government - furnished outer containers will not be included in the weight for payment purposes.

(X) C.37 ACCEPTANCE OF DISPOSAL SERVICES INVOLVING FUEL BLENDING

DRMS acceptance of disposal services involving fuels blending is designed to encourage fuels blending as described at 40 CFR 266. It does not apply to blending for destructive incineration. Component fuels of the final blended product must adhere to EPA enforcement guidance at FR Vol. 48, No. 52, 11157-11160. The following additional criteria apply:

(a) The fuel blending facility must provide a certification to the ACO for each DRMS disposal contract affected, signed by a responsible official of the facility, which:

(1) Specifies maximum processing time that property would remain in the fuel blending tank farm and guarantee that the fuel blended product will not remain in storage longer than the certified processing time.

(2) Identifies by name, address and EPA ID number all facilities which received the fuel blended products for energy recovery, per 40 CFR 266, subparts D and E.

(3) Identifies by name, address and EPA ID number all facilities which received the incidental solids, still bottoms, and/or sludges remaining after fuels blending which require destructive incineration per 40 CFR 264 and 265 subpart O.

(4) Guarantees that the fuel blended product will not be shipped out of the United States.

C.37 (Cont'd)

(b) DRMS prime Contractors must obtain DRMS approval prior to the use of any incinerator that receives material in paragraphs C.37 (a)(2) and (3) above. In addition, these facilities must meet the criteria outlined at clause M.6.(c) or M.9.(c), as applicable, of the solicitation. Use of these facilities must be on a contract-by-contract basis. Use of such facilities without prior DRMS approval will result in the rejection of the blender's certification and reversion to the standard tracking system, consisting of a manifest to the fuel blending facility, a manifest from the fuel blending facility to an incinerator and a certificate of destruction issued by the facility.

(c) DRMS will certify acceptance of disposal services only after acceptance of the blender's certification and expiration of the period discussed in (a)(1) above, following manifested receipt by the fuel blending facility.

(d) Any inconsistency between this provision and C.12 or C.13 shall be resolved by giving precedence to this provision.

() C.38 RETROGRADES

The Contractor agrees to pickup and remove retrograded property from (port). A retrograde is defined as the return of U.S. made and procured property from an overseas U.S. military location. The Contractor will receive a delivery order listing all of the property in the shipment a minimum of thirty days in advance of the date the shipment is scheduled to arrive in CONUS at the port indicated. The Contractor will be provided with the following: carrier(s) name, carrier(s) point of contact, shipping information and estimated arrival date/time. The Contractor will be required equipment required for pickup. The Contractor must remove the arriving property from the port of entry (POE) within ninety-six hours once the property is available for removal. It is the Contractor's responsibility to coordinate with the carrier(s) and POE to determine the availability of property as to time and date or changes in carrier(s) or POE in order to meet the removal time frame.

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(X) C.41 REPORTS

(a) DEHS Form 1786 and DEHS 1668. A Pickup Report (DEHS Form 1786 for Non-PCB items or DEHS Form 1668 for PCB items) shall be completed by the Contractor at the time of each pick-up and shall accompany each shipment. Completed copies are to be furnished to the Contracting Officer in accordance with clause G.9 and the Defense Reutilization & Marketing Office affected. Blank forms will be provided by the Government upon request. All waste picked up shall be listed on the DEHS Form 1786 or DEHS Form 1668 and shall reference the contract line item number as shown in Section 8 of this contract. For those BOSS generated removals, the completed Order For Supplies or Services (DD 1155) will be submitted instead of DEHS Form 1786 or DEHS Form 1668.

(b) DEHS Form 1683. Certificate of Disposal (DEHS Form 1683). The Contractor shall prepare the Certificate of Disposal attached. This certificate is to be submitted prior to the invoices in accordance with clause G.9. Any differences between the contract inventory and what was actually picked up or disposed of must be thoroughly described and documented. Use attachments to the certificate of disposal if necessary.

(c) DD Form 1155, ORDER FORM FOR SUPPLIES OR SERVICES. The Contractor shall annotate a copy of the DD Form 1155 including any applicable continuation sheets and applicable pages from modifications to show only those lines being submitted for acceptance. These documents are to be submitted prior to the invoices as described in clause G.9.

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(X) C.43 PROCEDURE FOR ASSIGNING A CLIN DRMS (SEP 1990)

STEP 1: Determine if the item is regulated as a hazardous waste under RCRA or by the date from which it is being shipped.

a. If the item is a hazardous/state regulated waste, you must use Part 1 of the matrix to select the proper CLIN. Go to step 2.

b. If the item is not a hazardous/state regulated waste, use Part 2 of the matrix to select the proper CLIN. Go to step 7.

STEP 2: Determine if the item is specifically listed on Part 1 of your bid schedule.

a. If it is on your bid schedule, select the most descriptive CLIN, provided that the item's physical characteristics or uses are consistent with the category of the CLIN. (If not, use procedure for selecting a miscellaneous CLIN.)

b. If the item is not specifically listed on your bid schedule, it will usually be assigned a miscellaneous CLIN. Proceed to step 3.

STEP 3: Determine if the item is a government selected waste stream (i.e., Batteries, Pesticides, Solvents, etc.).

a. If the item fits into one of these waste categories (and it is not a large quantity or recurring generation), go to that category of CLINs and select the miscellaneous CLIN.

b. If it is a large quantity or recurring generation, go to step 6.

c. If the item does not fit into one of these selected waste categories, proceed to step 4.

STEP 4: Determine if the item is a "listed waste" under 40 CFR 261.33.

a. If it is (and not a large quantity or recurring), select CLIN 0005/0006 for "P" listed wastes, or CLIN 5604/5605 for "U" listed wastes.

b. If you have a large quantity or recurring waste, go to step 6.

c. If the item is not a listed waste, go to step 5.

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C.43 (Continued)

STEP 5: Determine if the item exhibits a characteristic of hazardous waste (see 40 CFR 261, Subpart C).

a. If it does (and is not a large quantity or recurring), select the miscellaneous CLIN from the appropriate category (i.e., Corrosive Acids, Corrosive Bases, BP Toxics, or Ignitables).

b. If you have a large quantity or recurring waste, go to step 6.

STEP 6: If the item is a large quantity or you expect repeated generations, request a new CLIN through your ACO.

STEP 7: Determine if the item is specifically listed on Part 2 of your bid schedule.

a. If it is, assign the most descriptive CLIN.

b. If not, go to step 8.

STEP 8: Determine if controlled disposal is warranted. If unsure, consult your Region Headquarters.

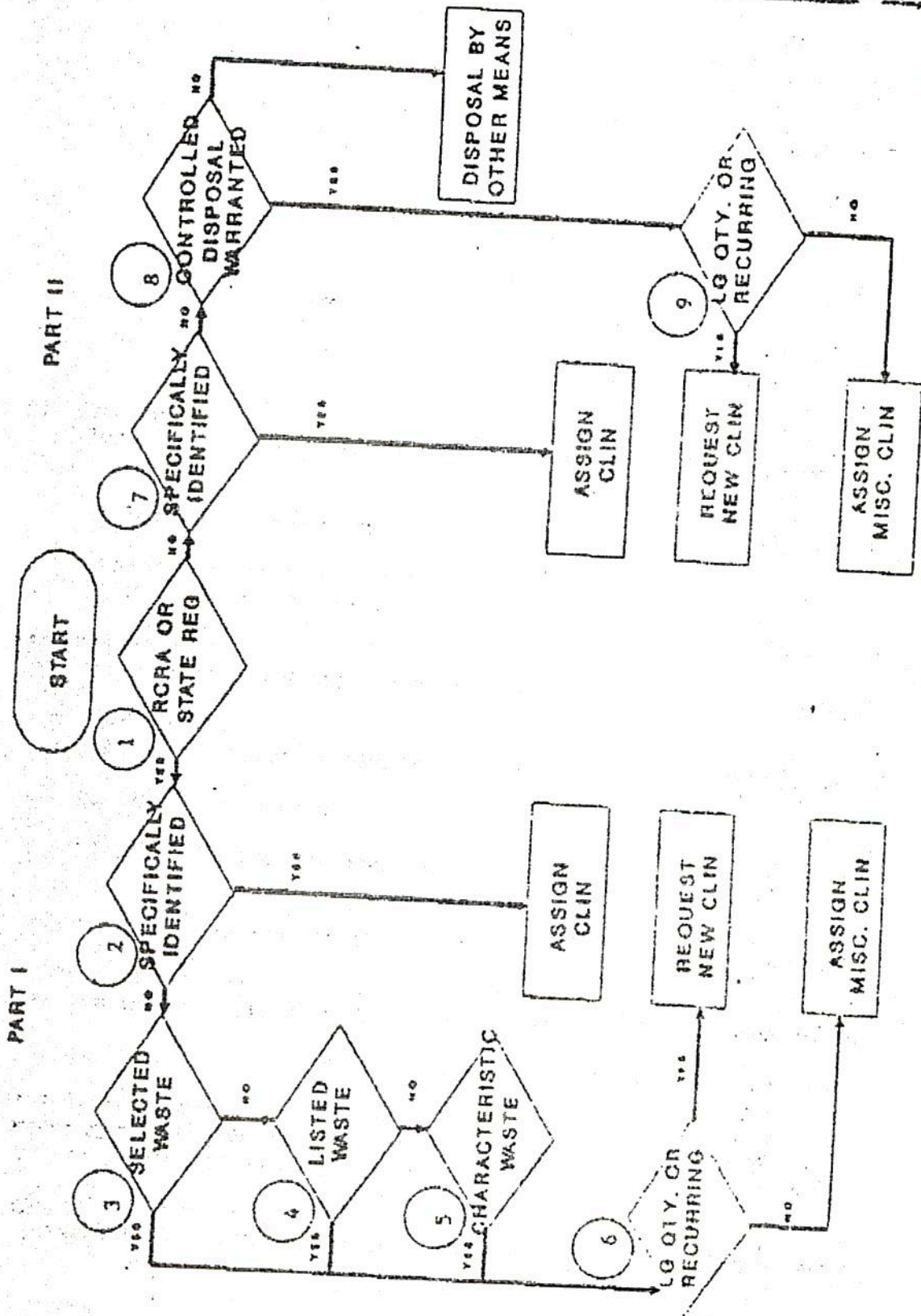
a. If controlled disposal is not required, arrange for disposal by other acceptable means.

b. If it is (and you do not have a large quantity or recurring generation), assign the non-RCRA miscellaneous CLIN.

c. If you have a large quantity or expect repeated generations, go to step 9.

STEP 9: If you have a large quantity or expect additional generations, request a new CLIN through your ACO.

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C.43 (Continued)

GROUND RULES

1. When dealing with a mixture of two or more chemicals or products, you must select a miscellaneous CLIN unless you can meet one of the following conditions:
 - a. The mixture is specifically listed on your bid schedule.
 - b. The mixture contains only one chemical or product which by itself would meet the definition of a hazardous waste (RCRA or State) and the chemical or product in question represents the largest constituent of the mixture by volume.
2. If an item is to be CLINED by characteristic and it exhibits two or more characteristics, the proper CLIN selection will be based on the following heirarchy: Reactive, Ignitable, Corrosive, EP Toxic.
3. If a CLIN represents a waste with a list of contaminants, all listed contaminants must be present to select that CLIN.
4. If a CLIN represents a waste that may be contaminated, those contaminants need not be present to select that CLIN.
5. An item must always meet the criteria of the category under which it is CLINED; e.g.,
 - a. For an item to be CLINED under one of the two listed waste categories, it must meet the definition of 40 CFR 261.33 or be a state-regulated waste listed under that category.
 - b. For an item to be CLINED under one of the five characteristic categories, it must exhibit the characteristic of that category as defined in 40 CFR 261, Subpart C.
 - c. For an item to be CLINED under a selected waste stream, it's use must be consistent with that category.

C.43 (Continued)

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EXCEPTIONS TO THE MATRIX

1. Empty Containers:

a. Containers that previously contained an acutely hazardous waste are assigned CLIN 1200, if one gallon or greater in size. If less than one gallon, assign CLIN 1202.

b. Containers not previously containing an acutely hazardous waste and not regulated in the state from which they are being shipped are assigned CLIN 6089, if one gallon or greater in size and CLIN 6107 is less than one gallon.

c. Containers not previously containing an acutely hazardous waste, but regulated in the state from or to which they are being shipped, are assigned CLIN 1203 if they previously contained a PART 1 waste and CLIN 6115, if they previously contained a PART 2 waste.

2. Small Containers of Waste (less than 7 lbs/1 gal):

a. Whenever you have a small quantity you must assign a small quantity CLIN, even if the item is specifically listed. The first CLIN of each waste category is for small quantities. To select the proper CLIN, follow steps 3-5 of the Procedure to select the proper category. Then select the miscellaneous small quantity CLIN within the category.

b. Do not use the small quantity CLINs if the individual small containers are packaged in an outside package and the outermost containers and its contents is greater than 7 pounds or 1 gallon. It is not proper for the DRMO to place small containers inside a larger one to avoid selecting a small quantity CLIN.

3. Aerosols:

All aerosols must be ordered under an aerosol CLIN. Follow the decision matrix until you reach a category on your bid schedule that has an aerosol CLIN.

D.0

SECTION D - PACKAGING AND MARKING

~~(X)~~D.1 PACKAGING, MARKING AND LABELING

DHMS (APR 1984)

ORIGINAL
(Red)

The Contractor shall package, mark, label and load all items in such a manner that all applicable federal, state and local EPA and DOT regulations are met. If items must be repackaged for proper shipment the Contractor shall perform such repackaging and furnish all required materials. When repackaging is necessary, the Contractor shall be responsible for disposal of the original container and packaging in a manner that complies with all applicable federal, state and local EPA and DOT regulations. The Contractor shall also provide and affix the appropriate placards to each vehicle prior to leaving Government premises.